

Section 3 Historic Background

The Historic Background review presented below is largely drawn from that presented in the SHPD-accepted AISP (Hammatt and Shideler 2011: Section 3, pages 22 to 53) for this portion of the HHCTCP. That AISP (Hammatt and Shideler 2011: 15, 117) asserts that the “cultural background section will be augmented in the subsequent AIS report through the incorporation of the results of Kumu Pono Associates and SRI Foundation’s ongoing TCP/ethnographic/ethnohistoric studies for the Airport vicinity.” This is addressed in Appendix A: Place Names, *Wahi Pana*, and a Synthesis of Data from Ethnographic/Ethnohistoric Studies. Appendix B contains documents for the Land Commission Awards (LCA) in the vicinity of the Airport Section 3 study area.

3.1 Hālawa Ahupua‘a

3.1.1 Early Historic Period

Captain Cook first sighted O‘ahu on January 18, 1778 but did not make a landing. Shortly after the death of Captain Cook, O‘ahu had its first contact with foreigners when *HMS Resolution* and *HMS Discovery* landed at Waimea Bay on February 27, 1779. It was not until 1786 that the next contact with foreign ships were made when *HMS King George* under Captain Portlock and the *Queen Charlotte* under Captain Dixon pulled in at Wai‘alae Bay for a brief four-day stop to provision their ships. Visits by foreigners were much more frequent after 1786 (McAllister 1933:5).

Our first details about Hawaiian settlement in Hālawa come from explorers’ accounts and maps such as Otto von Kotzebue’s O‘ahu map of 1817 (Figure 8). While this early survey map should be understood as rather schematic, it is, however, understood to indicate the general pattern of coastal residence and agriculture. A quilt of ponded fields of taro (*lo‘i kalo*) and fairly dense associated habitations extend west from the western edge of the present HHCTCP corridor section. This dense pattern of occupation is understood to really begin in the immediate vicinity of the mouth of Hālawa Stream. It extended westward along the margins of Pearl Harbor with its abundant marine resources, relatively fertile soils, and numerous streams. In contrast is the relative lack of habitation and agriculture along the majority of the present study corridor. The post-erosional volcanic land forms of Makalapa, Āliamanu Crater, and Salt Lake (Āliapa‘akai) Crater effectively pushed Hālawa Stream to the northwest (and Moanalua Stream to the southeast) leaving these dry lands with relatively poor soils that were impossible to irrigate. Traditional patterns of life focused further inland where rainfall was higher and adjacent to the main trail from Kona to ‘Ewa (see Figure 7).

The population of the islands of Hawai‘i at Contact has been conservatively estimated to be between 100,000 on the low end, and up to 400,000 (Schmitt 1977), but some recent estimates of population have been as high as 800,000-1,000,000 (Stannard 1989 & Kame‘eleihiwa 1992). In the 1820s, both William Ellis (1969) and C. S. Stewart (1970) estimate the population of O‘ahu to be about 20,000 (Ellis 1969:19; Stewart 1970:26). It is not clear how they came to arrive at this. Ellis writes about the Hawaiian population:

Compared with those of other islands, the inhabitants may be termed numerous. They were estimated by their discoverers at 400,000. There is reason to believe

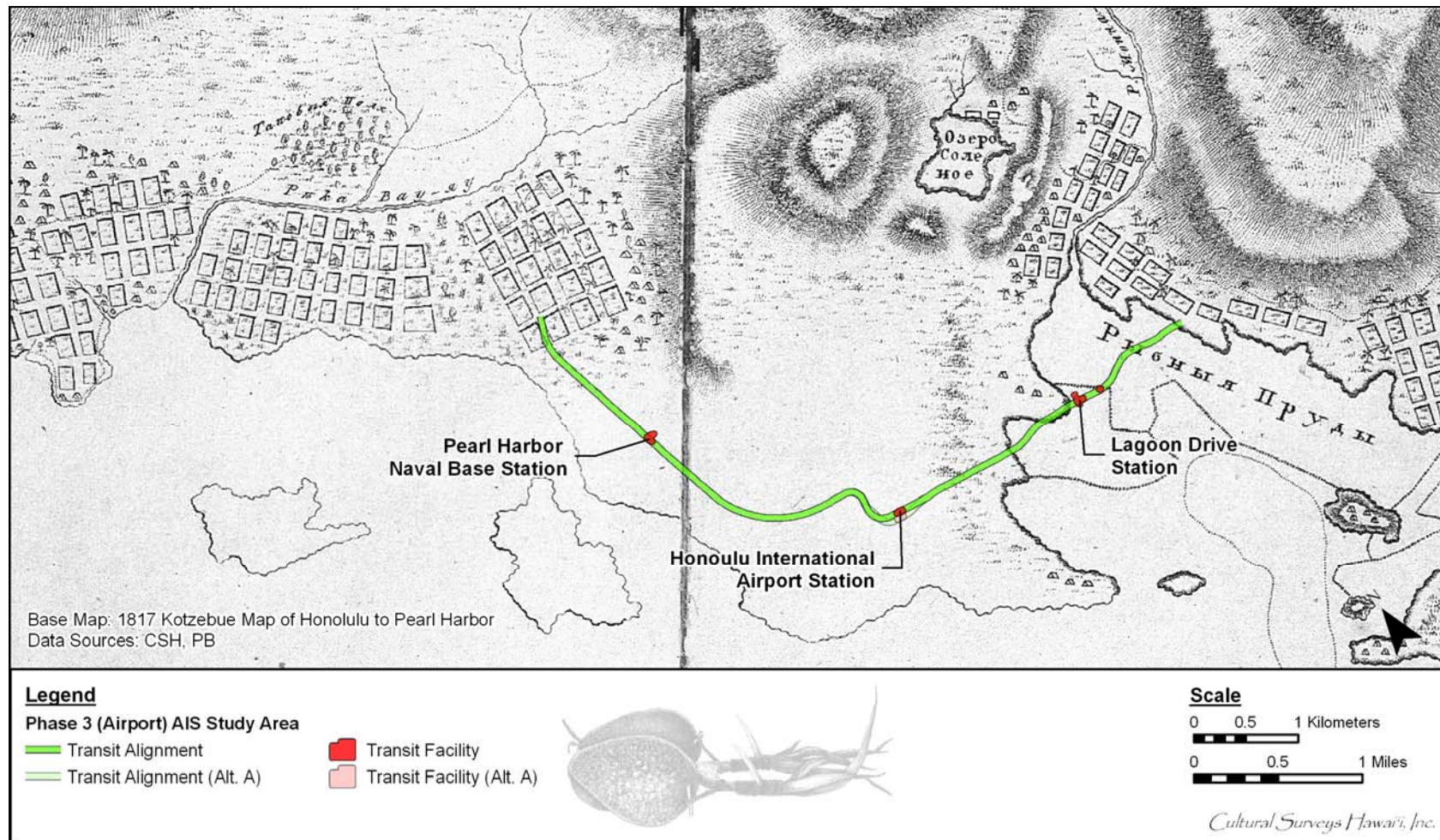


Figure 8. South Oahu Otto von Kotzebue map of 1817 identifies Salt Lake (“Озеро Соленое”), Mauna-Roa (Moanalua) River (“*Р. Моуна-роа*”), and fish ponds (“*Рыбные Пруды*”) along the shoreline of Moanalua. The map also shows a profusion of *lo‘i kalo* (irrigated taro fields) in the lowlands of Moanalua east of Āliapa‘akai (Salt Lake), spreading out from Moanalua Stream and stretching back from the fishponds at the former shore. (Note: while this early survey map should be understood as rather schematic; the relative lack of habitation along the Airport Section of the project corridor is striking)

this was somewhat above the actual population at that time, though traces of deserted villages and numerous enclosures, formerly cultivated but now abandoned, are everywhere to be met with. At present it does not exceed 130,000 or 150,000 [for the Hawaiian Islands collectively], of which 85,000 inhabit the island of Hawaii. (Ellis 1969:23)

The missionaries are credited with taking the first census in 1831-32. Some mission stations took even more detailed records such as births, deaths, and marriages; however, there was no uniformity among the different stations for this first count. The first census list totals cover fairly large geographical areas, and information was not necessarily broken down into smaller *ahupua'a*, and no distinctions were made among sex, age, birth, and death rates (Schmitt 1973:1).

The 1831-32 census for O'ahu was 29,755, with Honolulu being the most heavily concentrated area with 13,344 people. After Honolulu, the 'Ewa district was the third largest with a count of 4,015. (Schmitt 1977:8-9) In this census, Hālawā was combined with 'Aiea. The census shows there were 163 males, 134 females, 72 male children and 35 female children; with a total count of 404 for the two *ahupua'a* (Schmitt 1977: 19). The reasonable inference is that these *ahupua'a* were fairly well-populated but not densely populated in comparison to the other *ahupua'a* of 'Ewa at the time.

There are no separate population figures given for Hālawā until the 1835-36 census. At that time, there were 104 males, 102 females, 48 male children, 29 female children; with a total count of 283 for the *ahupua'a*. The total for the *moku* of 'Ewa was 3,423; a decrease of 592 (seemingly a decline of 14.7% over 4 years) from the first census figures given.

In 1839, for the purposes of tax assessment, a law was passed to take an official government census which was to be carried out by the tax officers in the various districts. This was to have been done in 1840, but was not actually carried out. In 1846, a new law was enacted giving the responsibility of the computations to school officials. A count was undertaken in 1849, however, these are suspected to be under reported. It was not until 1850 that a more systematic and accurate census was conducted (Schmitt 1977:3).

Sometime after Kamehameha conquered O'ahu in the battle of Nu'uānu in 1795, he gave his most trusted foreign advisors, Isaac Davis and John Young, some lands as a reward for their loyal service to him. As part of this award, each one received half of the *ahupua'a* of Hālawā. As was the usual custom at the time, the king divided the land among his chiefs who supported him throughout his conquests of the islands.

These lesser chiefs (Young and Davis) were allowed to work the land as long as they lived. But, as was the traditional custom, upon their death the land reverted back to the *ali'i nui* or paramount chief. This rule held true even for these two most faithful advisors. John Young tried to make his lands inheritable by requesting that his children, and those of Isaac Davis whom he adopted, be allowed to retain the lands given to him by the king upon his death. Even by the late date of 1834, Kamehameha III refused to honor Young's request. It is interesting to note that even though his request was denied, in the Māhele, John Young's children were allowed to keep lands as *'āina ho'olīna* or inherited lands. Lilikalā Kame'eiehiwa notes that in all of the Buke Māhele, these were the only lands given under this designation (Kame'eiehiwa 1992:60).

Prior to John Young's death in 1835, he attempted to make his lands inheritable by willing Hālawā to his daughter, Grace Kama'iku'i. His will states:

. . . in behalf of my deceased friend Isaac Davis and for his children as he died without will, the King Kamehameha gave me all the said Isaac Davises [Davis'] lands to take care of them and his children until the children came of age, and now they are come of age so I think it right to leave my last wishes and will that the King, Ka'ahumanu, Adams and Rooke and all the Chiefs will let Isaac Davises children keep their father's lands that King Kamehameha gave to him as a reward for assisting the King in his wars in conquering the islands of Hawai'i, Maui, Molokai, and O'ahu, and which we have an undoubted right to leave to our children, which I hope in God our young king will fulfill the wishes of his honored father. My own lands, I wish my children to enjoy as I have done, likewise my wife . . . (Claim: #595 F.R. 67-72 V2)

3.1.2 The Māhele

The Organic Acts of 1845 and 1846 initiated the process of the Māhele - the division of Hawaiian lands - which introduced private property into Hawaiian society. In 1848, the crown and the *ali'i* (royalty) received their land titles. Kuleana awards for individual parcels within the *ahupua'a* were subsequently granted in 1850. These awards were presented to tenants, native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners who could prove occupancy on the parcels before 1845.

It seems clear that circa 1850 there was a relatively tight focus of Hālawā Ahupua'a settlement and agriculture a little more than a kilometer upstream of where the present study corridor crosses Hālawā Stream (Table 3, Figure 9 & Figure 10). This appears likely to have been a general pattern extending back in time for centuries with Hālawā habitation focused well inland. All of the land claims were inland of the present Airport Section 3 study area. There were no *kuleana* Land Commission Award (LCA) claims on the coastal plains of Hālawā Ahupua'a except in the immediate vicinity of Hālawā Stream. However, it should be noted that an unnamed settlement (annotated as "Settlement 1840" on an Anderson and Bouthillier map; see Figure 18) just southwest of the area that would become known as Watertown in the Pearl Harbor entrance attests to coastal settlement that probably existed for centuries along the margins of the Pearl Harbor entrance and the East Loch of Pearl Harbor.

The only two Hālawā Ahupua'a claims were associated with Land Commission Awards 2131 and 2043. Kanihoali'i, and his heir Kaukiwaa were claimants for LCA No. 2131 (see Appendix A for more details). LCA No. 2131 consisted of two distinct pieces: a *lo'i kalo* & *kula* adjoining in the *'ili* of Kamau and 2d, a fish pond on the sea shore which is a *lihi 'āina* of the said *'ili 'āina* Kamau. It appears it was the Pu'uone Kalokoloa fishpond parcel of LCA No. 2131 that abutted the east side of the north end of the present study area, just northeast of Hālawā Stream (see Figure 9 and Figure 10) and that the *lo'i* and *kula* claim was 1,400 m inland in Kamau 'Ili near Moanalua Road (see Figure 9).

Table 3. *Kuleana* Land Commission Awards for Hālawā Ahupua'a (adapted from Klieger 1995:63)

LCA #	Claimant	General Location	Assoc. Place Names	Land Use
1983	Hapule (Kapule)	N. of Hālawā Stream, just <i>mauka</i> of corridor	Kawahanaenae Mo'ō'āina Kawahanaenae 'Ili	eight <i>lo 'i</i> , one <i>kula</i> , house, one <i>pu 'uone</i> (seven <i>lo 'i</i> , one <i>kula</i>)
1996	Naea	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kulina Mo'ō'āina, Kulina (Kulena) 'Ili	three <i>lo 'i</i> , house (<i>kula</i>)
2016	Makakane	N. of Hālawā Stream, km. <i>mauka</i> of corridor	(Kamalanai 'Ili)	two <i>lo 'i</i> , one <i>kula</i>
2042	Kauohilo	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Keaupuni Mo'ō'āina, Kula, Keaupuni 'Ili	three <i>lo 'i</i> (three <i>lo 'i</i> , one <i>kula</i>)
2043	Kawaha	N. of Hālawā Stream, km. <i>mauka</i> of corridor- but Loko Kunana claim was west of Hālawā Stream	Kunana Mo'ō'āina & Kaulailoa Pu'uone, Kunana (Kaunana) 'Ili	three <i>lo 'i</i> , one <i>kula</i> , one pond (four <i>lo 'i</i> , one <i>kula</i> , one pond)
2044	Kaupali	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Pamuku Mo'ō'āina, (Pamuku 'Ili)	four <i>lo 'i</i> (four <i>lo 'i</i> , one <i>kula</i>)
2047	Kekio	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kaihuamo'o Mo'ō'āina & Kula, Kaehuamo'o or Kaihuamo'o 'Ili	1.5 <i>lo 'i</i> , one <i>kula</i> , house
2048	Kauhalu	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Palahalaha Mo'ō'āina, Kunana 'Ili	four <i>lo 'i</i> , one <i>kula</i> , house (five <i>lo 'i</i> , two <i>kula</i>)
2055	Kahawai-olaa	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kahaia Mo'ō'āina, Kunana (Kahaia) 'Ili	six <i>lo 'i</i> (six <i>lo 'i</i> , two <i>kula</i>)
2057	Keawe (1)	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Pamuku Mo'ō'āina, Kunana 'Ili	four <i>lo 'i</i> , one houselot (four <i>lo 'i</i> , two <i>kula</i>)
2059 n/a	Kaninauali'i	?	-	[dead in 1846]
2091 n/a	Kelohanui	?	-	six+ <i>lo 'i</i> , one <i>kula</i> , one houselot
2096	Kenui	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kuaimano Mo'ō'āina, Kulina (Kuaimano) 'Ili	four <i>lo 'i</i> , one <i>kula</i> , house

LCA #	Claimant	General Location	Assoc. Place Names	Land Use
2131	Kanihoali'i	N. of Hālawā Stream, just <i>mauka</i> of corridor & N. of Hālawā Stream, 1 km. <i>mauka</i>	Kalokoloa Pu'uone, Kamau 'Ili	one <i>lo'i</i> , two <i>pu'uone</i> , one <i>kula</i> , one houselot
2137	Keawe (2)	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kamo'oiki Mo'o'āina & houselot, (Kamo'oiki) 'Ili	two <i>lo'i</i> , one houselot (three <i>lo'i</i> , one <i>kula</i>)
2139	Kinilau	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Hanakapua'a Mo'o'āina, Kulina 'Ili	four <i>lo'i</i> , one <i>kula</i> , house (three <i>lo'i</i> , one <i>kula</i>)
2155	Pua'ali'ili'i	S. of Hālawā Stream, km. <i>mauka</i> of corridor	Kalo'iiki 'Ili	8.3 <i>lo'i</i> , one <i>kula</i> (nine <i>lo'i</i> , one <i>kula</i>)
2156	Opunui	S. of Hālawā Stream, km. <i>mauka</i> of corridor	Konohikilehulehu Mo'o'āina & Piomoewai Kula & houselot, Kalo'iiki 'Ili	3.3 <i>lo'i</i> , one <i>kula</i> one houselot (four <i>lo'i</i> one houselot)
2157	Kanakaoaki	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kulina 'Ili Kia 'Ili	four <i>lo'i</i> , six <i>lo'i</i> one <i>kula</i>
9330 n/a	Ka'auku'u	?	Muliwai (Makali'i) 'Ili	one <i>kula</i> (entire <i>'ili</i>)
9331 n/a	Pulao	?	Muliwai Mo'o'āina, Muliwai 'Ili	one <i>lo'i</i>
9332	Kaheana	N. of Hālawā Stream, just <i>mauka</i> of corridor	Kaihuamo'o Mo'o'āina, Kulina 'Ili	two <i>lo'i</i> , one <i>kula</i> (1/2 <i>lo'i</i>)
9332B	Kealohanui	N. of Hālawā Stream, km. <i>mauka</i> of corridor	Kumu'ula Mo'o'āina, Kia (Kumu'ula) 'Ili	four <i>lo'i</i>
9332C n/a	Kekoanui	?	Peahinaia 'Ili	one <i>lo'i</i>

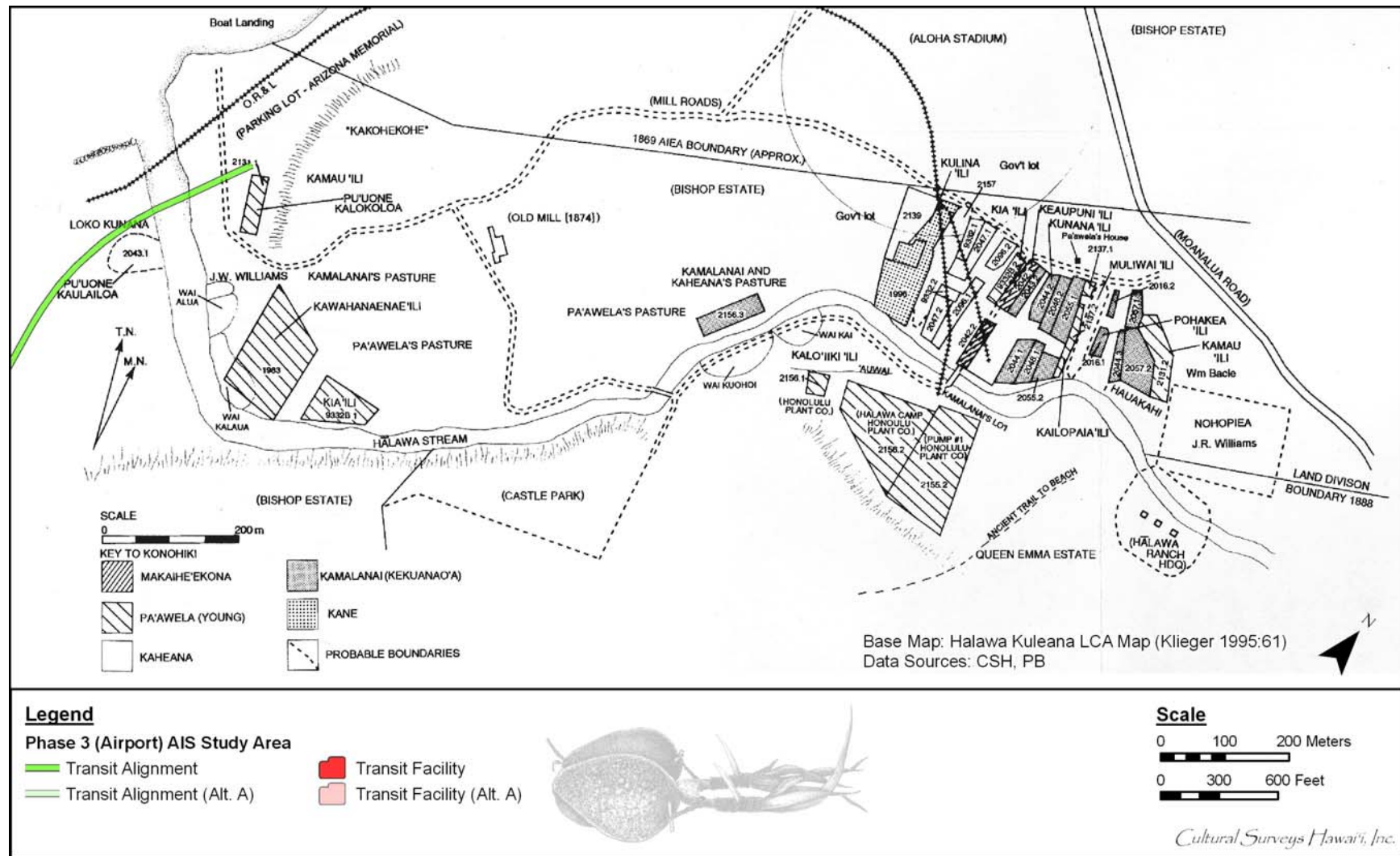


Figure 9. Relationship of the north end of the HHCTCP Airport (Section 3) corridor to the Hālawā Ahupua‘a kuleana LCA claims (adapted from Klieger 1995:61) showing the Pu‘uone Kalokoloa Fishpond (LCA 2131 adjacent to the north end of the study area) (Note: LCA shapes were often simplified into quadrilaterals in the course of surveying)

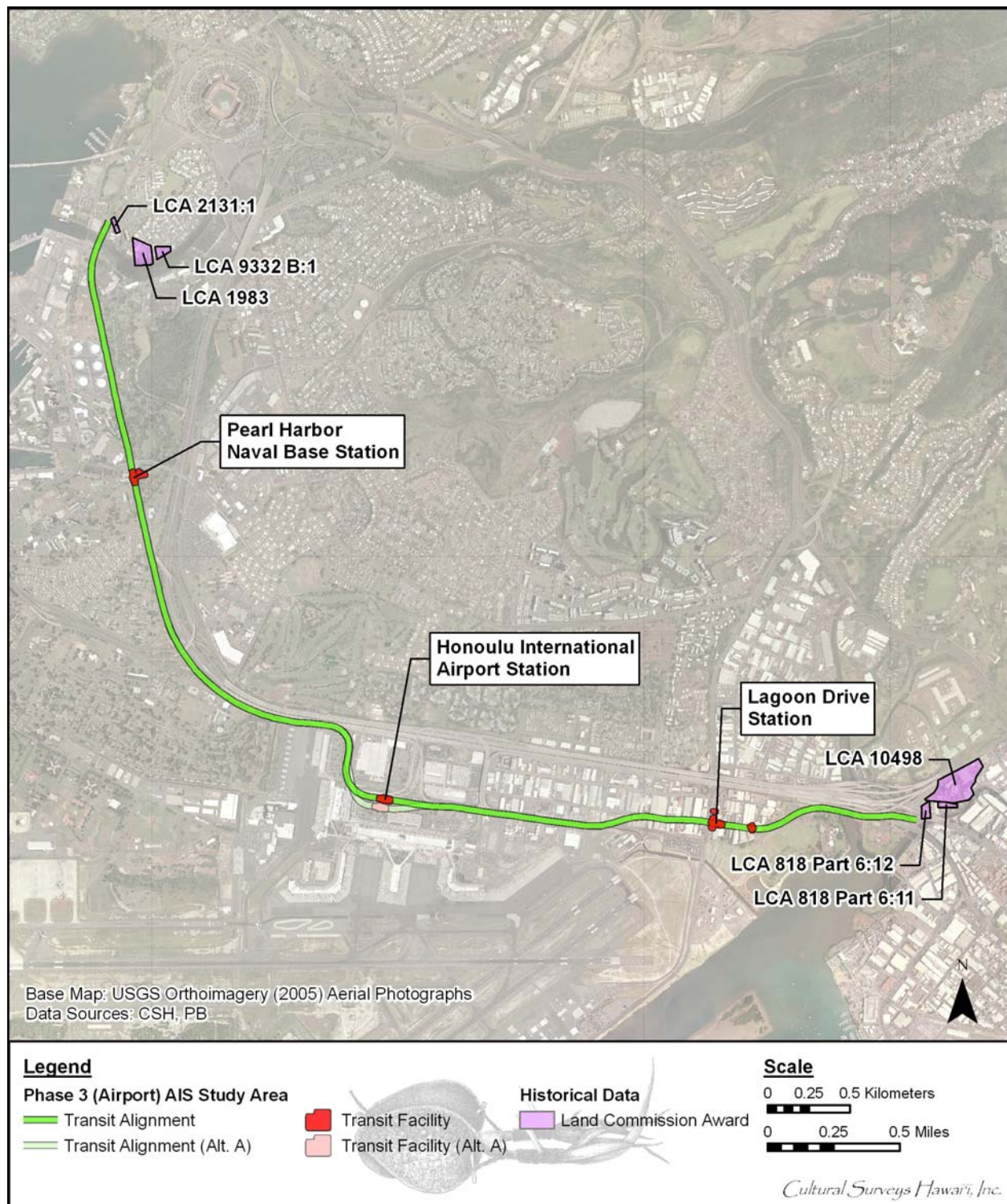


Figure 10. *Maka‘āinana* (Commoner) Land Commission Awards near the Airport Section 3 archaeological study area

Kawaha was the claimant to LCA 2043 (see Appendix A for more details) that included a fish pond that Klieger (1995:61) located on the southwest side of the mouth of Hālawa Stream just inland of the HHCTCP alignment and associates with the name “Pu‘uone Kaulaloa” (see Figure 9).

Oliver Holmes passed away in 1825. If he had indeed received Isaac Davis’ Hālawa lands, they were probably returned to Liholiho (Kamehameha II) who redistributed them after Holmes’ death. Holmes’ children did not claim any Hālawa lands in the Māhele, although his son, George Holmes was awarded a piece of land in Honolulu (LCA # 1045). It is this time period, from 1825 to 1848, that is most unclear. Subsequently, Kekūanaō‘a ended up with Davis’ Hālawa portion at the end of the Māhele and Grace Kama‘iku‘i Young Rooke (John Young’s daughter) retained the John Young portion. Isaac Davis’ portion of Hālawa passed from Kekūanaō‘a to Ruth Ke‘elekōlani and on to Bernice Pauahi Bishop. Upon Ruth’s death, her lands became part of the Bishop Estate Trust.

At the end of the Māhele in 1848, the *ahupua‘a* of Hālawa was awarded jointly to Grace Kama‘iku‘i Young Rooke and Kekūanaō‘a (LCA #s 8516B & 7712).

In 1852, Kekūanaō‘a wrote a letter to the Minister of Interior requesting that a list of the *kapu* (forbidden) fish for Victoria Kamāmalu’s lands on O‘ahu be published in the newspaper. The *kapu* fish for Hālawa was the *‘anae* or full-sized mullet (Kekūanaō‘a August 12, 1852).

In 1862, Mataio Kekūanaō‘a and Kama‘iku‘i Rooke (John Young’s daughter) leased a portion of *ahupua‘a* of Hālawa to a Manuel Paiko of Honolulu for the purpose of cattle ranching (B.C. Liber 9:174-179).

In 1866, Kama‘iku‘i willed to her sister, Fanny Na‘ea, her interest in her portion of Hālawa.

In 1879, Fanny gave her interest of Hālawa to her daughter, Emma Kaleleonālani Na‘ea Rooke, Queen of Kamehameha IV, by way of a deed which stated:

. . . the undivided ½ interest of and in to the Ahupua‘a of Hālawa situate in ‘Ewa, Island of Oahu, and more fully described in Royal Patent 6717 to Grace Kamaikui and being the same premises devised to me the said Fanny Young Kaleleonalani by the said Grace Kamikui. (Liber 59:285)

Fanny died one year later in 1880. A listing of *konohiki* (Headnan of an *ahupua‘a*) lands on the island of O‘ahu reflects the joint tenancy of Hālawa. Both Ruth Ke‘elikōlani and Queen Emma are listed as owners. The document also lists the lands on O‘ahu that abut the ocean, including the length and whether the land is a lagoon, reef or open sea. The length of the land abutting the sea at Hālawa is 8.52 miles and it is listed as being a reef and a lagoon. (Interior Department Letters, Document No. 15) Five years later, Queen Emma died in 1885, leaving no heirs. All of her lands became part of the Queen Emma legacy.

Throughout the years, there seems to have been dispute over the joint tenancy of Hālawa between the families of Kekūanaō‘a and Young. In 1888, after a new survey was completed, Sanford B. Dole settled the matter by giving the northern portion of Hālawa to the Bishop Estate and the southern portion, including the current study area to the Queen Emma Trust (see “Queen Emma Estate” on Figure 12). From this time on, the boundaries have been distinct and the two portions recognized independently of each other.

3.1.3 Mid- to late-1800s

From early visitor descriptions of Hālawā and 'Ewa, one can already begin to see that by the 1820s the demographics and landscape had changed considerably. Where once the area was heavily populated and highly productive, it begins by the 1820s to dwindle in population with fewer villages and fewer areas under cultivation.

By 1850, three years after the Māhele, the census for O'ahu was 25,440, which shows a decline of 14.5% over eighteen years. This population decline has been attributed to several factors including disease, high infant mortality, and low fertility rates due to sexually transmitted diseases (Schmitt 1973:15). Decline is also probably due to people moving away from rural areas and closer to Kou (Honolulu), which was the center of trade and economic activity. On the island of O'ahu, a decrease in the population statistics is seen almost yearly until 1884, when the figures show an increase from then on into the twentieth century (Schmitt 1977:11). The increase is probably related in part to the growth of the sugar industry and the imported labor that was needed to work the plantations.

The first Chinese laborers arrived in Hawai'i in 1852 under contract to work on sugar plantations. As the demand for *kalo* declined and importation of Chinese laborers to the west coast of California and Hawai'i increased, a market for rice developed. *Lo'i* lands were ideal for growing rice, and as these lands lay in disuse and became more available, the Chinese farmers snatched them up. Most of the land was "near sea level--undrained areas at the mouths of streams: lowlands, which could be reclaimed without great expense" (Coulter & Chun 1937:11). The Royal Hawaiian Agricultural Society encouraged rice as a new crop. The first rice harvest occurred in 1862. By the mid-1860s, much of the *lo'i* on O'ahu had been transformed into rice fields. By 1892, there were approximately 117 acres of land planted in rice in the lowlands of Hālawā (Coulter & Chun 1937:21).

In many *ahupua'a*, the lands that were not claimed by *kuleana* claimants were leased out to entrepreneurs who started ranching and sugar plantations on a large scale (Klieger 1995:71). Such was the case with Hālawā. In 1862, Kama'iku'i Rooke and Mataio Kekūanaō'a leased much of Hālawā (including the current study area) to a Manuel Paiko, a Portuguese rancher (Klieger 1995:76). The lease document reads that the boundaries begin at "a small brook which forms the boundary between Hālawā and Moanalua" and continue "along the ridge of the mountain bordered on the north by 'Aiea and Kalauao, and on the west by Ko'olau, to the top of a peak called Aloheo; which forms the boundary between Moanalua and Hālawā." The leased area consisted of approximately 10,000 acres. However, excluded from the lease was the "sea, the lagoons, the fish and all ponds, the enclosed *kalo* lands, all *kuleana* awarded by the Land Commission, and so much of the *kula* lands adjoining the pond Ka Waiaho." The lease was taken out for fifteen years with a rent of \$500 per year (Bureau of Land Conveyance, Liber 9:174-179). Manuel Paiko took on a business partner, James Dowsett of 'Ulupalakua Ranch fame. By 1870, their herd consisted of 1,400 head (Bureau of Land Conveyance, Liber 29:239).

James Dowsett and another partner, J. R. Williams, tried unsuccessfully to raise sugar. Due to lack of a railroad to haul cane and the mill burning down three times, they gave up trying to raise sugar in 1875. Altogether, about 100 acres had been planted in cane (Condé and Best 1973:327).

Maps from the late 1800s (Figure 11 and Figure 12) indicate the current study area was relatively undeveloped and was probably in cattle pasture leased by Manuel Paiko.

An 1873 Lyons map of Pearl Lochs (Figure 11), shows the lay of the land at the north end of the Airport Section at that time. At the extreme north end of the Airport Section is a road connecting the short-lived Dowsett and Williams Halawa Mill with a boat landing that was presumably used for the exporting of sugar prior to the railroad connection. The immediate vicinity of where the project corridor crosses Hālawā Stream is shown as “mud flat”. There is no evidence of any active fishpond or cultivation in this immediate area at that time. Active cultivation is indicated in the area just north of the southern bend of Hālawā Stream approximately 200 m upstream from the project corridor (modern Kamehameha Highway). This is consistent with the Klieger (1995:61) reconstruction (see Figure 9) showing that the focus of agricultural activity was *mauka* of the project corridor. Notably several fishponds in the general vicinity are clearly indicated in a manner suggesting they were still active but the indicated locations of the former Pu‘uone Kalokoloa Fishpond and Pu‘uone Kaulailoa Fishpond, previously bracketing the mouth of Hālawā Stream (see Figure 9), are “mudflats”. While the project corridor for a kilometer south of Hālawā Stream is shown without any indication of human activity, the 1873 Lyons map (Figure 11) shows details in the immediate vicinity of the Pearl Harbor Naval Base Station. There is a notable small gulch in this immediate area that is named (what appears to be) “Kailalewai”. A trail is shown as crossing the project corridor just north of the Pearl Harbor Naval Base Station in this immediate area. The corridor to the south is shown without any indication of human activity.

The development of the Oahu Railway along the coast of Hālawā (see Figure 12) in the 1890s did open up the Hālawā lands to commercial sugarcane production. The Beasley and Taylor map of 1899 shows no development along the project corridor other than the Oahu Railway. The development of a Pu‘uloa train stop (probably a small “camp”) is shown approximately 800 m southwest of the Pearl Harbor Naval Base Station. The “Halawa Station” is indicated by a small circle on the rail line just north of the mouth of Hālawā Stream west of the project corridor.

3.1.4 Modern Land Use

At the end of the nineteenth century, the Honolulu Sugar Company (re-named the Honolulu Plantation Company by 1906; see Figure 13) began leasing portions of Moanalua for sugar cane cultivation. By the mid-1930s, the company had more than 23 thousand acres of land leased, having expanded significantly up the coastal plain to the north inland of the East Loch of Pearl Harbor (see Figure 17). Sugar cane planting extended quite far seaward, but there is reason to believe the small coastal floodplain of Hālawā Stream was in rice production circa 1900 (Figure 13). The extent of early sugar cane cultivation in the area just south of Hālawā Stream is not altogether clear, but a 1919 map (Figure 14) shows a sugar cultivation symbol (faintly) on the southwest slope of Makalapa Crater near the present study area. A sugar plantation community developed at Puuloa Camp near Puuloa Station on the O‘ahu Railway and Land Company (OR&L) alignment on the Hālawā/Moanalua *ahupua‘a* boundary (approximately 400 m west of the project corridor) in the early 1900s (see Figure 12 to Figure 14). Another new Hālawā Ahupua‘a community called Watertown developed adjacent to the east side of the Pearl Harbor entrance (see Figure 18).

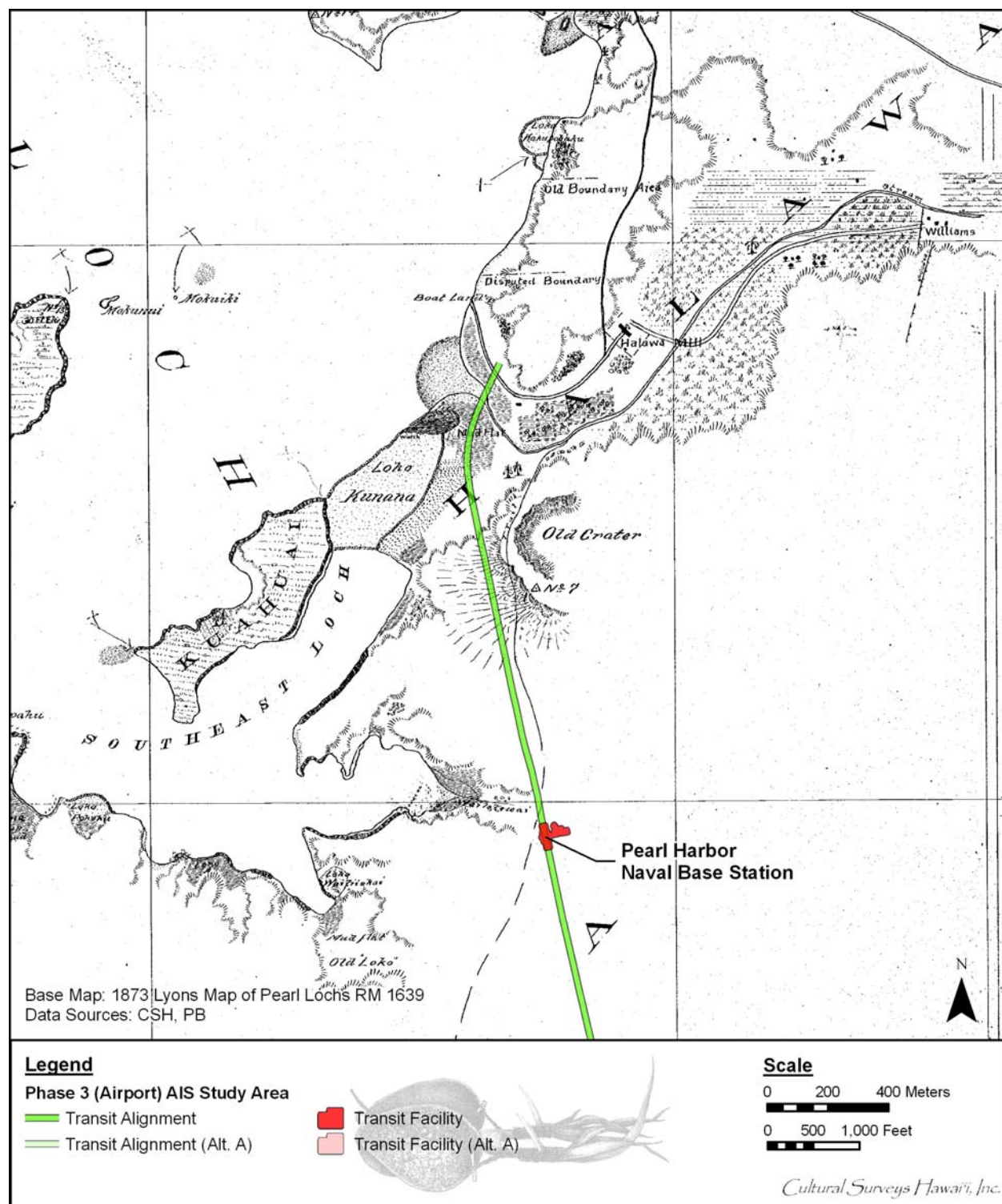


Figure 11. 1873 Lyons map of Pearl Lochs (RM 1639) (Note: a trail is shown as crossing the Airport Section 3 corridor in the vicinity of the Pearl Harbor Naval Base Station crossing a swale that appears to show a small water course flowing into the small Wailowai Fishpond)

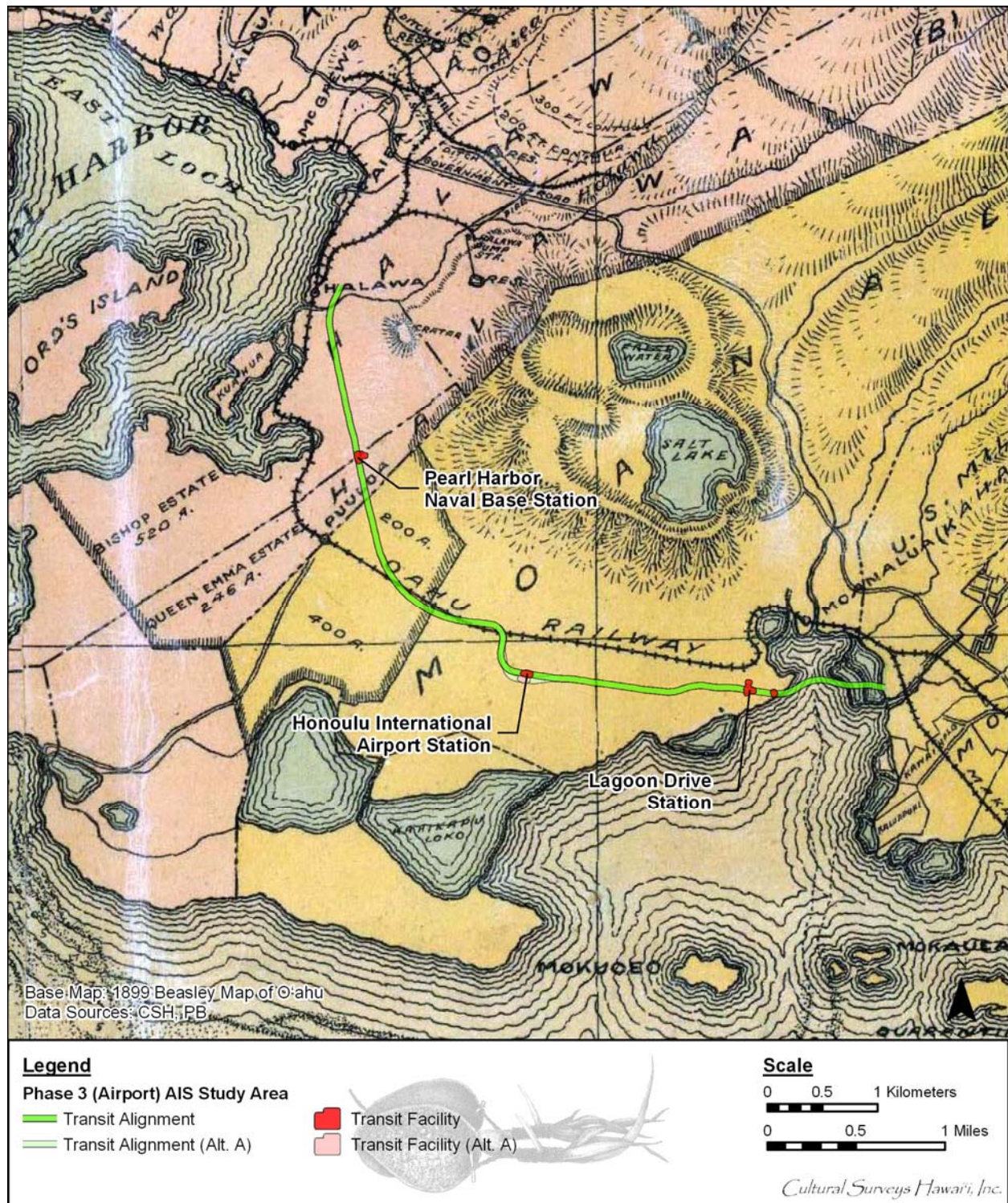


Figure 12. 1899 Beasley map of O'ahu showing the Airport Section 3 study area

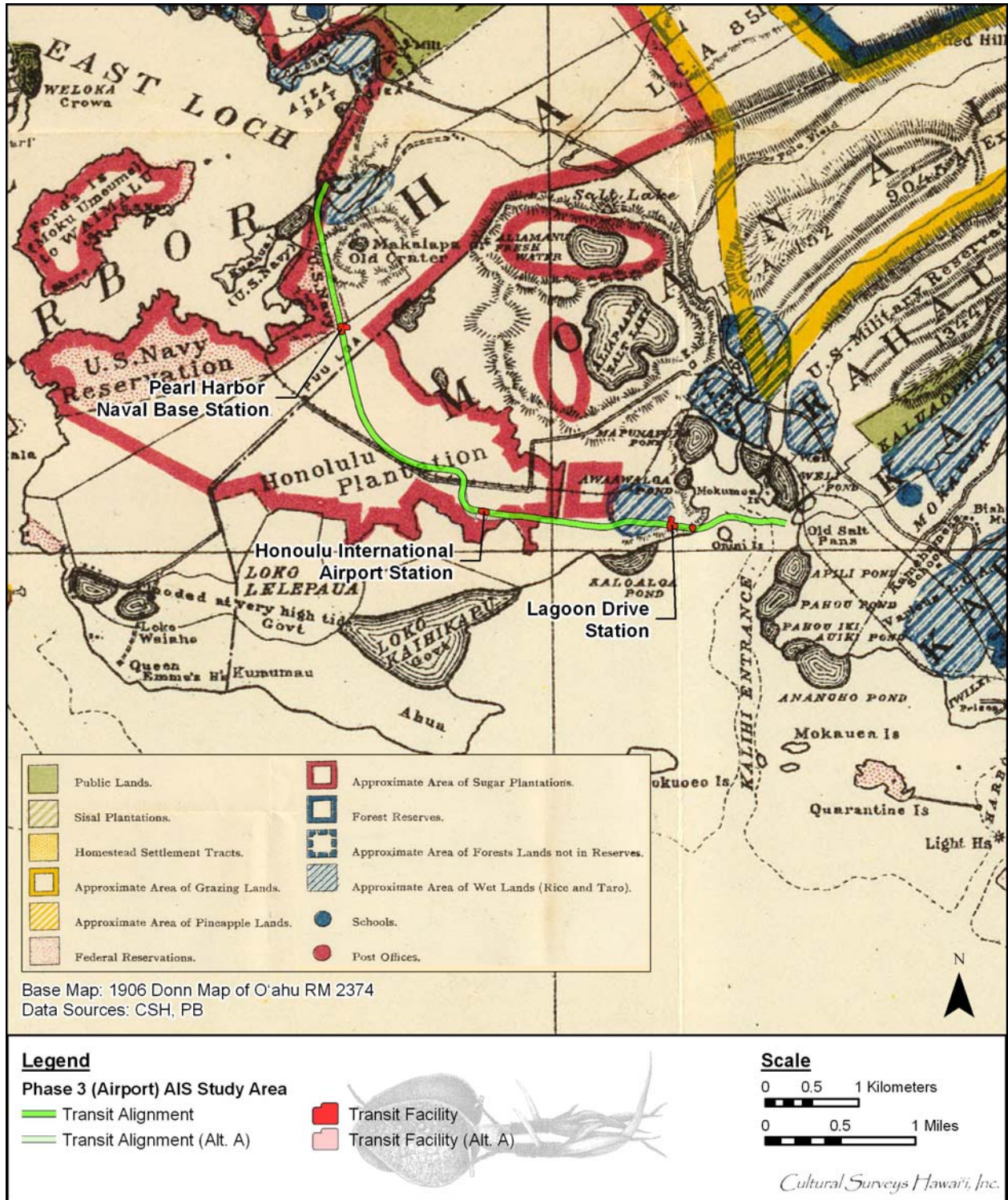


Figure 13. Portion of Donn 1906 Map of Oahu, RM# 2374 (Note: extensive “Approximate Area of Sugar Plantations” and two “Approximate Areas of Wetlands” along route)

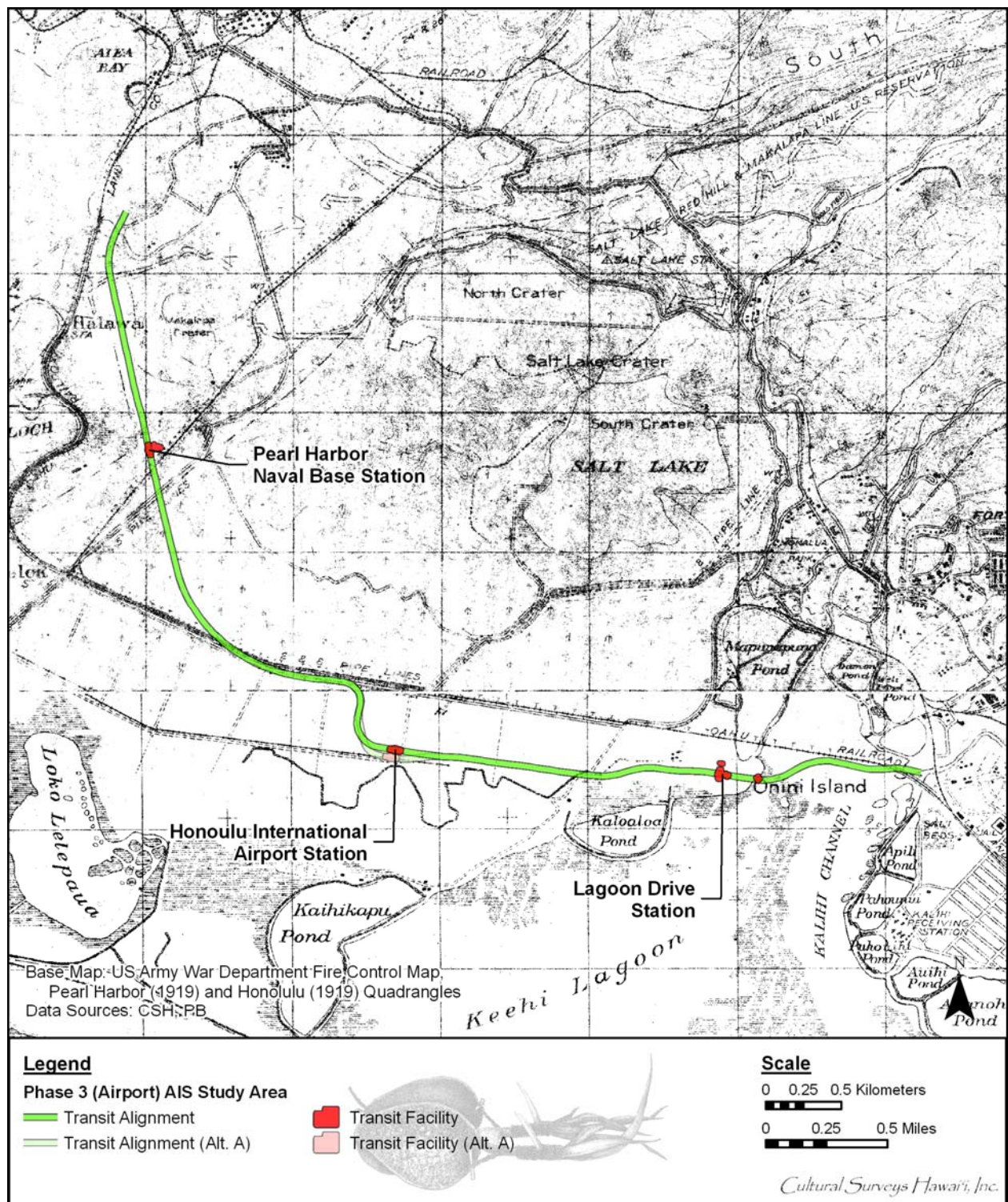


Figure 14. 1919 Fire Control Pearl Harbor and Honolulu quad maps showing location of the Airport Section 3 study area (U.S. Army Mapping Service)

Historic maps show the development of Honolulu plantation in the vicinity of the study area. The Donn 1906 map of Oahu (see Figure 13) appears to show the Honolulu Plantation fields including the majority of the northwest and central portions of the present study area. No other development is indicated in the vicinity (other than the OR&L railroad and Pu'uloa Camp). The new OR&L railroad runs very close to the eastern margin of Pearl Harbor (seawards of the project alignment for most of its route across Hālawā Ahupua'a. The Donn 1906 map of Oahu (see Figure 13) also shows an area of wetland cultivation (rice and taro) near the project corridor: at the bottom lands near the mouth of Hālawā Stream (and another just west of the Lagoon Drive Station in Moanalua Ahupua'a).

The 1919 Fire Control quad map (see Figure 14), and the 1933 US Army War Department map (Figure 16) and Honolulu Plantation map of circa 1935 (Figure 17) show a *makai/mauka* trending Honolulu Plantation Company railroad extending inland just south of Makalapa Crater (crossing the project alignment just south of the Pearl Harbor Naval Base Station) but otherwise there is little development shown in the vicinity of the project corridor in Hālawā Ahupua'a. "Halawa Station on the OR&L route is shown

A Taylor Honolulu Sugar Company Property map of 1925 (Figure 15) shows that the northern end of the Airport Section of the project corridor, just north of Hālawā Stream was at the southern end of sugar cane "Field 2". The "Halawa Station" on the OR&L is called out on this 1925 map (just north of Hālawā Stream, west of the north end of the Airport Section). "Land condemned for Naval Station" is shown adjacent to the west (*makai*) side of the Airport Section west of Makalapa Crater.

The Honolulu Plantation map (Figure 17) and the Composite Site Map prepared by Anderson and Bouthillier (1996) (see Figure 18) corroborates the authors' understanding that most of the project corridor in Hālawā Ahupua'a was in sugar cane fields for many decades and that the cultural features in the vicinity; including Watertown (Hālawā Ahupua'a), Puuloa Camp (on the Hālawā/Moanalua Ahupua'a boundary) and Lelepaua Pond, Ka'ihikapu Pond and the 1930s salt works (Moanalua Ahupua'a) were well to the south. The Anderson and Bouthillier map (1996, see Figure 18) assigned a "low probability" for archaeological and historical resources to most of the lands traversed by the Airport section because of these decades under sugar cane cultivation as well as the distance from the coast and the distance from known areas of cultural activity (such as fishponds and Pu'uloa Camp).

Pearl Harbor had been the focus of American interests in the Hawaiian Islands for many decades prior to annexation. Following annexation in 1898, and with an eye on the need to establish a coaling station for American warships travelling to the Philippines and beyond, improvement at the Pearl Harbor entrance was a major concern. Some 429 acres were purchased from Queen Emma Kaleleonalani for \$28,285 which was developed as Fort Upton (changed to Fort Kamehameha in 1909). An additional 400 acres were purchased from the Damons in 1911.

In 1908, the Navy undertook the dredging of the Pearl Harbor channel that was blocked by a shallow sand bar that had greatly restricted earlier development efforts. Much of the fill from this and later dredging efforts was used to fill in low-lying lands. Five separate coastal defense batteries were built (including Battery Selfridge and Battery Hawkins). The Fort Kamehameha post housed Hawaii's first aviation unit in 1917/1918. The population of the base remained about 1800 until World War II.

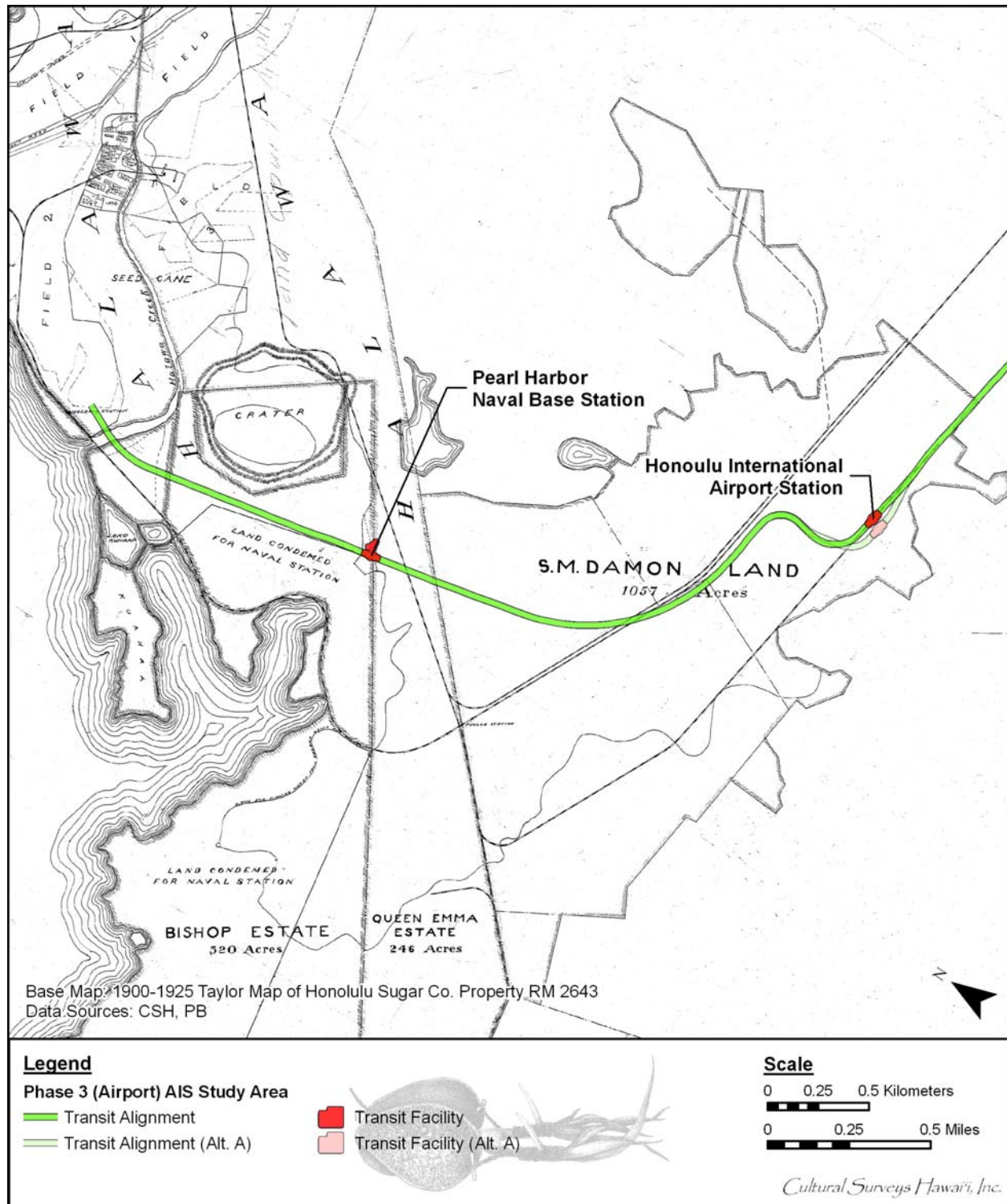


Figure 15. 1925 Taylor Honolulu Sugar Company Property map

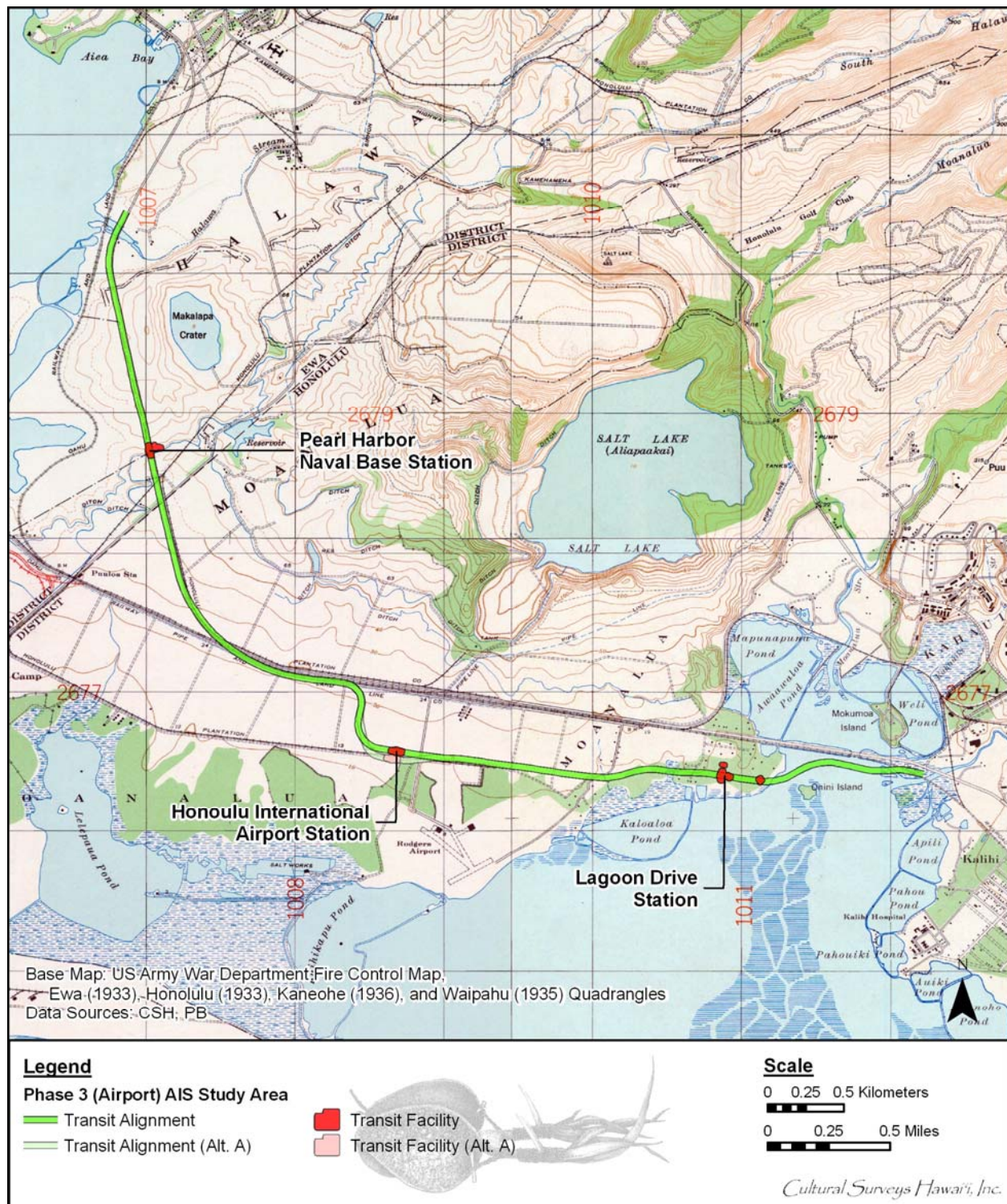


Figure 16. 1933 U. S. US Army War Department quad map showing study area

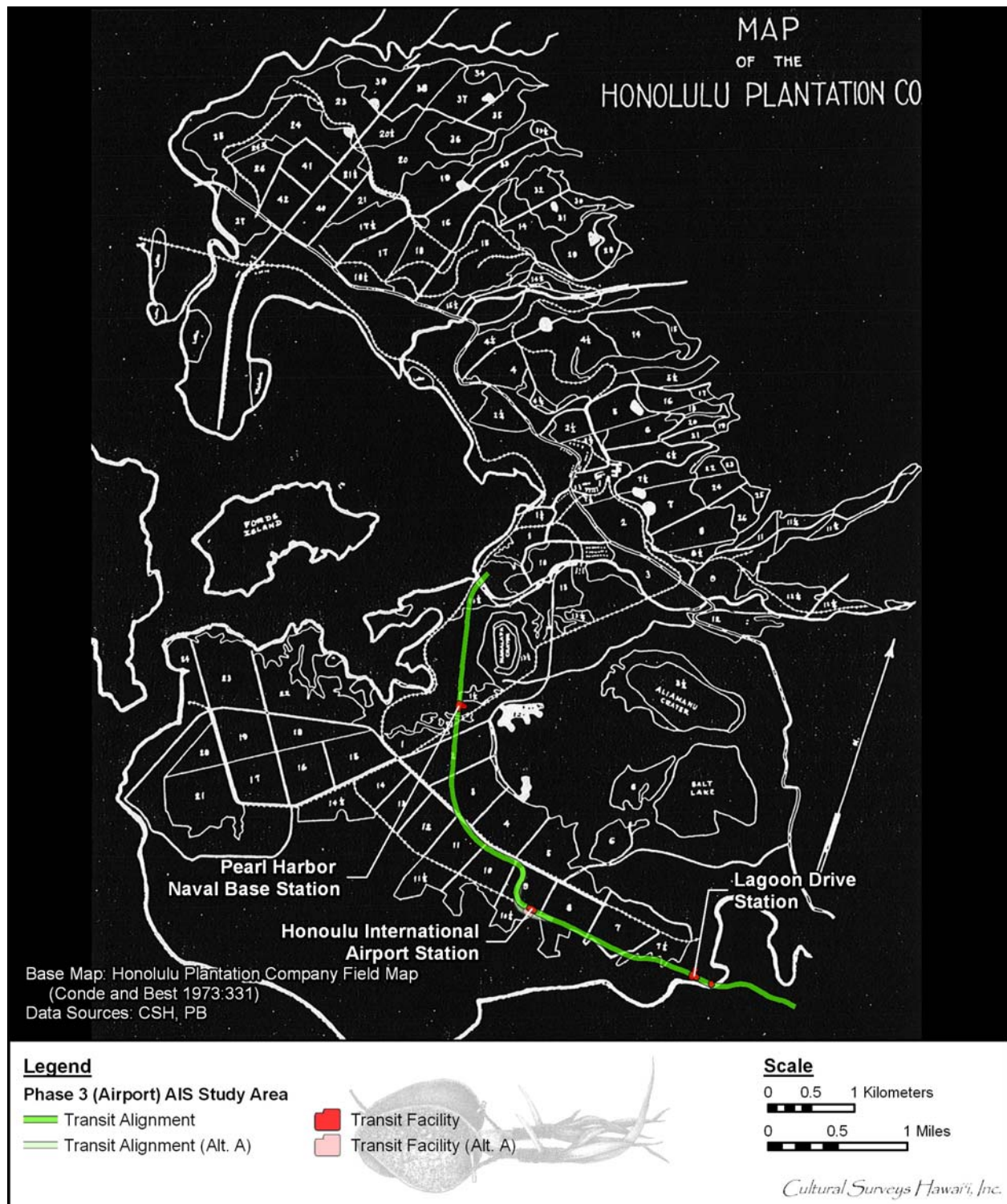


Figure 17. Map of the Honolulu Plantation c. 1935 showing fields near study area

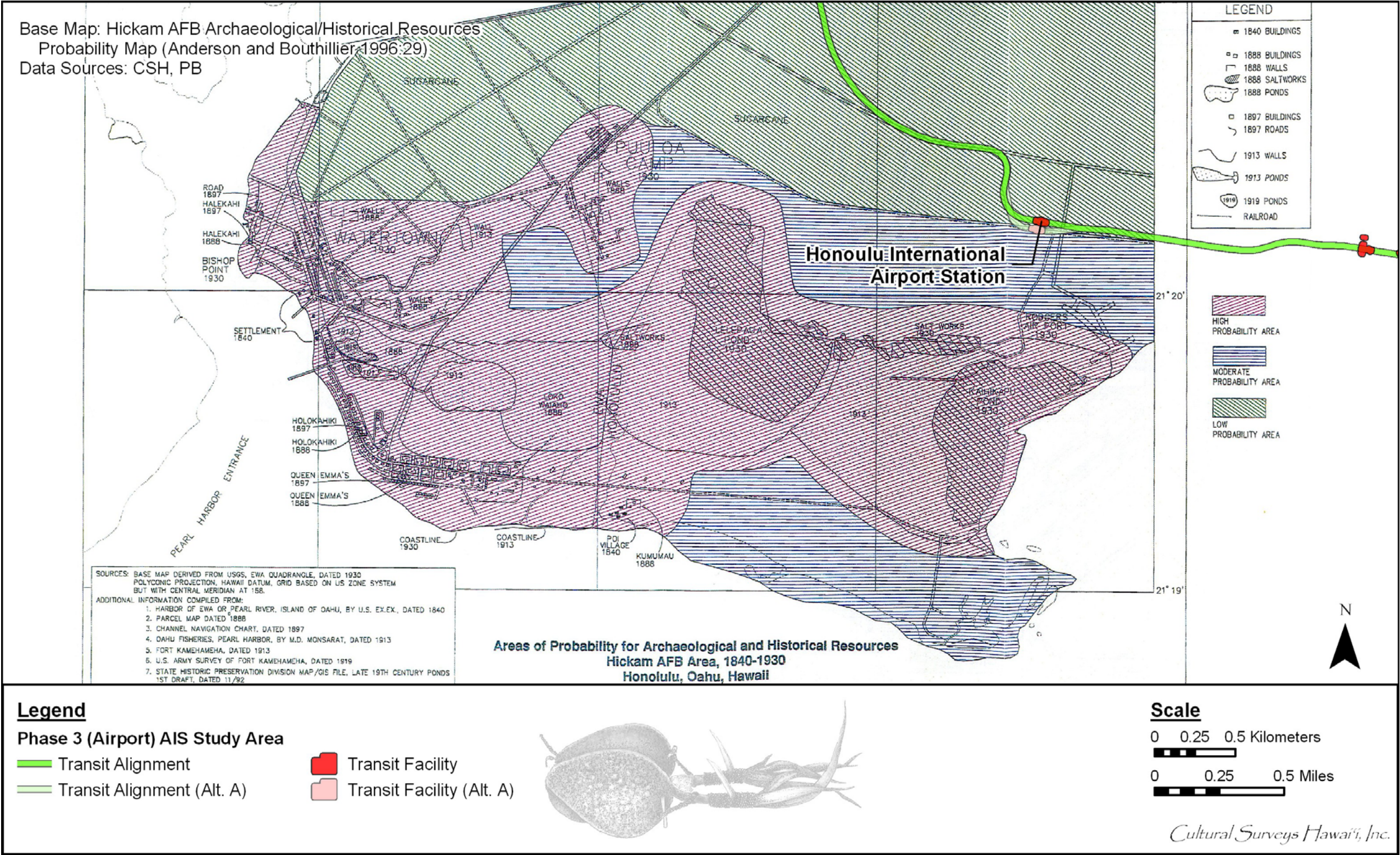


Figure 18. Composite Site Map 1840-1930 (adapted from Anderson and Bouthillier 1996:29) showing relationship of the project corridor to the cultural resources of the greater Hickam area including Watertown (Hālawā Ahupua‘a), Puuloa Camp (on the Hālawā/Moanalua Ahupua‘a boundary), Waiaho Pond, Lelepaua Pond, Ka‘ihikapu Pond, the 1930s salt works (all in Moanalua Ahupua‘a) and Areas of Probability for Archaeological and Historical Resources

In the 1930s, an Army Air Corps airfield was established to the west of Rodgers Airport. The Hickam Air Force Base (AFB) web site offers the following brief history of this military base's early development:

In 1934, the Army Air Corps saw the need for another airfield in Hawaii and assigned the Quartermaster Corps the job of constructing a modern airdrome from tangled brush and sugar cane fields adjacent to Pearl Harbor on the island of Oahu. The site consisted of 2,200 acres of ancient coral reef, covered by a thin layer of soil, located between Oahu's Waianae and Koolau mountain ranges, with the Pearl Harbor channel and naval reservation marking its western and northern boundaries, John Rodgers Airport to the east, and Fort Kamehameha on the south. The new airfield was dedicated May 31, 1935 and named in honor of Lt. Col. Horace Meek Hickam, a distinguished aviation pioneer killed Nov. 5, 1934, at Fort Crockett in Galveston, Texas.

Hickam AFB now consists of 2,850 acres of land and facilities valued at more than \$444 million. (Hickam Air Force Base 2008)

The 1943 War Department quad map (Figure 19) shows the new (present day) Kamehameha Highway with substantial residential development recently constructed on both sides of the Highway within Hālawa Ahupua'a. The 1953 Army Map Service map (Figure 20) shows the western portion of the Section 3 project alignment in Hālawa Ahupua'a much as it is today.

3.2 Moanalua Ahupua'a

3.2.1 Early Historic Period

Records of European visitors to Moanalua during the first quarter of the nineteenth century provide clear evidence that, by the time of western contact in the late eighteenth century, a sizeable population of Hawaiians existed within Moanalua Ahupua'a. Settlement concentrated around the fertile bottom lands of Moanalua Stream on the east side of the *ahupua'a*.

Those possibilities included an abundance of plant life that provided sustenance and building materials. A botanical survey (Bishop and Herbst 1970) has recorded 197 endemic and indigenous plant species in Moanalua. Further, the physical characteristics of the *ahupua'a* provided an especially rich environment for the Hawaiians to build upon. The land form created by streams deep-cutting into the Ko'olau volcano and the embayment created by offshore reefs produced a broad zone of rich alluvial lands bordering a shallow lagoonal environment. In the alluvium, the Hawaiians of Moanalua created an irrigated system of pond-field taro gardens fringed with bananas and sugar cane growing on the embankments that outlined the fields. And the stream water that supported the field system, continuing on into the shallow bay, distributed organic nutrients that would have attracted large fish populations to the bay. This established the appropriate environment for the construction by the Hawaiians of fishponds to exploit and control these resources.

The navigator Otto von Kotzebue, in the employ of the Russian navy, visited Honolulu in November and December 1816. Kotzebue decided "to undertake a little excursion on foot [in order to survey the coast] to the river called Pearl River by the English [known variously in

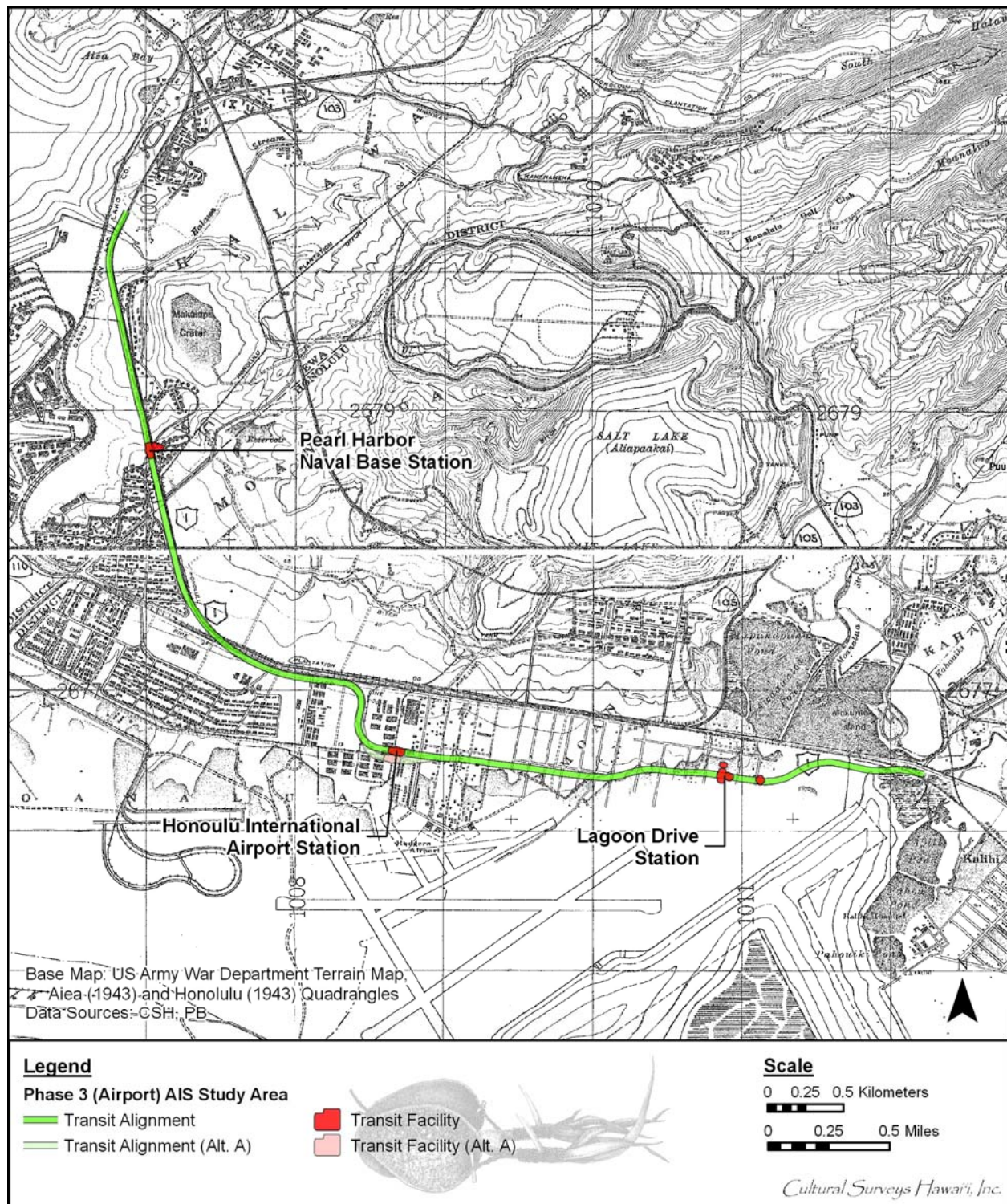


Figure 19. 1943 U.S. War Department Aiea quadrangle map showing study area

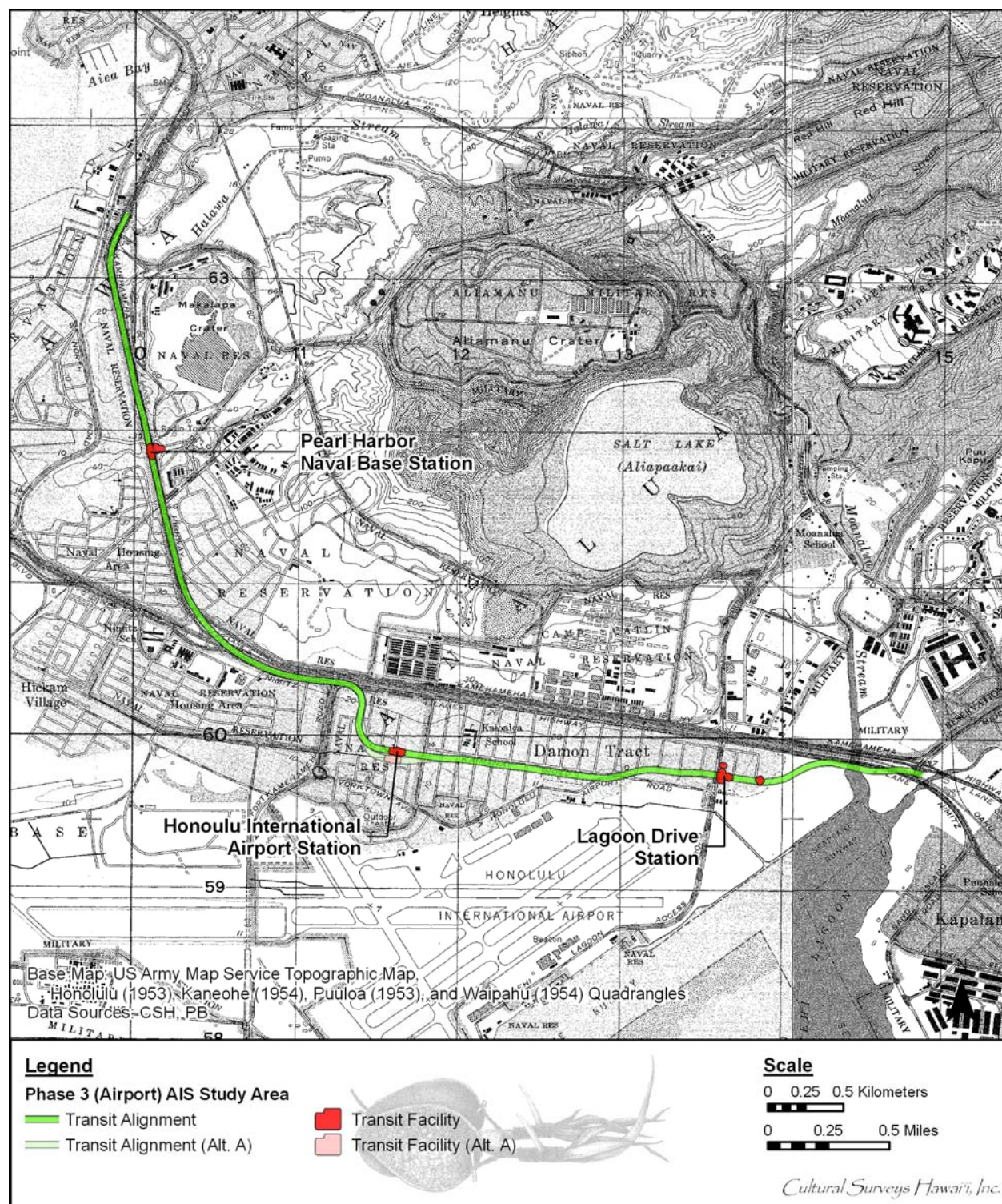


Figure 20. 1953 Army Map Service Aiea quadrangle map showing study area (U.S. War Department)

Hawaiian as “Wai momi” “Awalau” and “Pu‘uloa”; see Sterling and Summers 1978:46], lying half a day's journey to the west of Gana-Rura [Honolulu]." Kotzebue and two shipmates set out on December 8, 1816:

On our way, we met now sugar plantations, now taro fields, now scattered huts; and so, without noticing it, we covered the five miles to the large village of Mauna-Roa [i.e. Moanalua - the Russians had misheard the name and thought it the same as Mauna Loa on the island of Hawai'i], situated in a delightful valley on a mountain slope. From here, there winds to the sea a fast-flowing river of the same name. It is visible at a great distance and wanders through the mountains and cliffs in the most picturesque fashion. In front of the village, consisting of pretty little reed huts, one encounters two groves, one of coconut palms, the other of breadfruit. We passed through these little groves, to take a rest on the hill lying immediately behind. (in Barratt 1988:232)

On the hill where Kotzebue and his companions stopped, "a general view of Honolulu Harbour opened up to us. Our compass was set up and I took a number of angles with my sextant" (Barratt 1988:232). The following year, 1817, Kotzebue drew a map of the south coast of O'ahu. The map (see Figure 8) identifies Salt Lake (“Озеро Соленое”), Mauna-Roa (Moanalua) River (“*Р. Моуна-роа*”), and fish ponds (“*Рыбные Пруды*”) along the shoreline of Moanalua. The map also shows a profusion of taro *lo'i* (irrigated fields) in the lowlands of Moanalua below Āliapa'akai (Salt Lake), spreading out from Moanalua Stream and stretching back from the fishponds at what was then the shore. The Kotzebue map is quite early (reflecting the area in 1816) and should be understood more as a detailed sketch than as a surveyed map.

Āliapa'akai itself would have provided a valuable resource to the Hawaiians of Moanalua before and after western contact. The missionary William Ellis presents this description of Salt Lake in the 1820s:

About six miles to the west of Honoruru, and nearly as far from the village of Eva, on the Pearl river, there is a singular natural curiosity - a small circular lake, situated at a short distance from the sea shore, so impregnated with salt, that twice in the year the natives take out between two and three hundred barrels of fine clear, hard, crystalized salt: this lake is not only an interesting natural curiosity, but an important appendage to the island. It belongs to the king, and is not only useful in curing large quantities of fish, but furnishes a valuable article of commerce; quantities of it having been sent for sale to Kamtschatka, and used in curing seal skins at the different islands to which the natives have sent their vessels for that purpose, or sold in the islands to Russian vessels, from the settlements on the north-west coast of America. (Ellis 1969: 18-19)

The trade in salt dwindled by the mid-nineteenth century and, as a visitor of that time noted, the salt in the lake had "almost wholly disappeared" (Bates 1854:102).

The grove of coconut palms at Moanalua mentioned by Kotzebue was described in more detail by a visitor of the 1830s:

But to return to the little valley, about three miles from Honolulu on the road to Ewa over. . . On looking down, you behold a large grove of cocoanut trees, some

of which give evidence of having been blown upon with no ordinary breath; appearing to have been nearly prostrated when about twenty feet high, they again shot up in a perpendicular direction and now present the curious phenomenon of living trees, the upper half of whose trunks are almost at right angles from the lower. It is a little remarkable that the surrounding trees on every side are perfectly straight. (Hall 1839:97)

Maps of Moanalua produced during the second half of the nineteenth century - i.e. before substantial alterations to the landscape - display the profusion that had been developed by the Hawaiians of the "large village" (Kotzebue) of Moanalua by the time of western contact. A map (ca. 1890s) by M.D. Monsarrat and C.J. Lyons (see Figure 21) shows the expanse of fishponds that extended along the shores of Moanalua and the adjacent *ahupua'a* of Kahauiki and Kalihi.

It should be noted, however, that the present project alignment does not appear to cross any of these fishponds (see Figure 21 and Figure 22). Furthermore, the present project alignment runs over modern fill land in the vicinity of the mouth of Moanalua Stream. While the natural mouth of Moanalua Stream was a rich area of Hawaiian settlement, the area was actually 300 m inland of the present project alignment (see Figure 23) due to the very substantial infilling and land creation within what was traditionally coastal shallows (see Figure 5 regarding the extent of fill land and compare Figure 16 and Figure 17 that show the shoreline pushed out 500 m).

In 1826, ten years after Kotzebue's had observed the "large village" of Moanalua, Hiram Paulding, a naval officer following the same route from Honolulu to Pearl River, recorded that "the country was thinly inhabited. We met with no considerable village or rich valley (Paulding 1970:205).

The diminished population within Moanalua that Paulding observed likely reflects changes taking place throughout the Hawaiian Islands during the years following western contact: The population of Moanalua at the time of the first large-scale census by American missionaries in 1835-36 totaled 625 and included: 234 adult females, 252 adult males, 48 female children, and 91 male children (Schmitt 1973:19). These figures reflect, tragically, the decimation of the native population by western-introduced diseases and the upsetting of traditional social patterns by the influx of western commercial ideals.

The work of Anderson and Bouthillier (1996) documents two coastal communities in the Hālawā-Moanalua coastal plain: an unnamed settlement (annotated as "Settlement 1840") just southwest of the area that would become known as Watertown in the Pearl Harbor entrance (it is unclear if there was any continuity between the 1840 settlement and "Watertown" of the 1930s), and another community known as "Poi Village" on the southwest coast of the current study area (Figure 7). These are assumed to have been traditional Hawaiian fishing villages. It seems probable that settlement closer to the present study area was effectively prevented by the low-lying marshy ground in the vicinity.

3.2.2 Fishponds of Moanalua

The fishponds along the shoreline of Moanalua - *loko kuapā* that were controlled by the *ali'i* - are another resource that must have greatly increased the productivity of the area. The fishponds of the Hālawā-Moanalua Plain are summarized in Table 4.

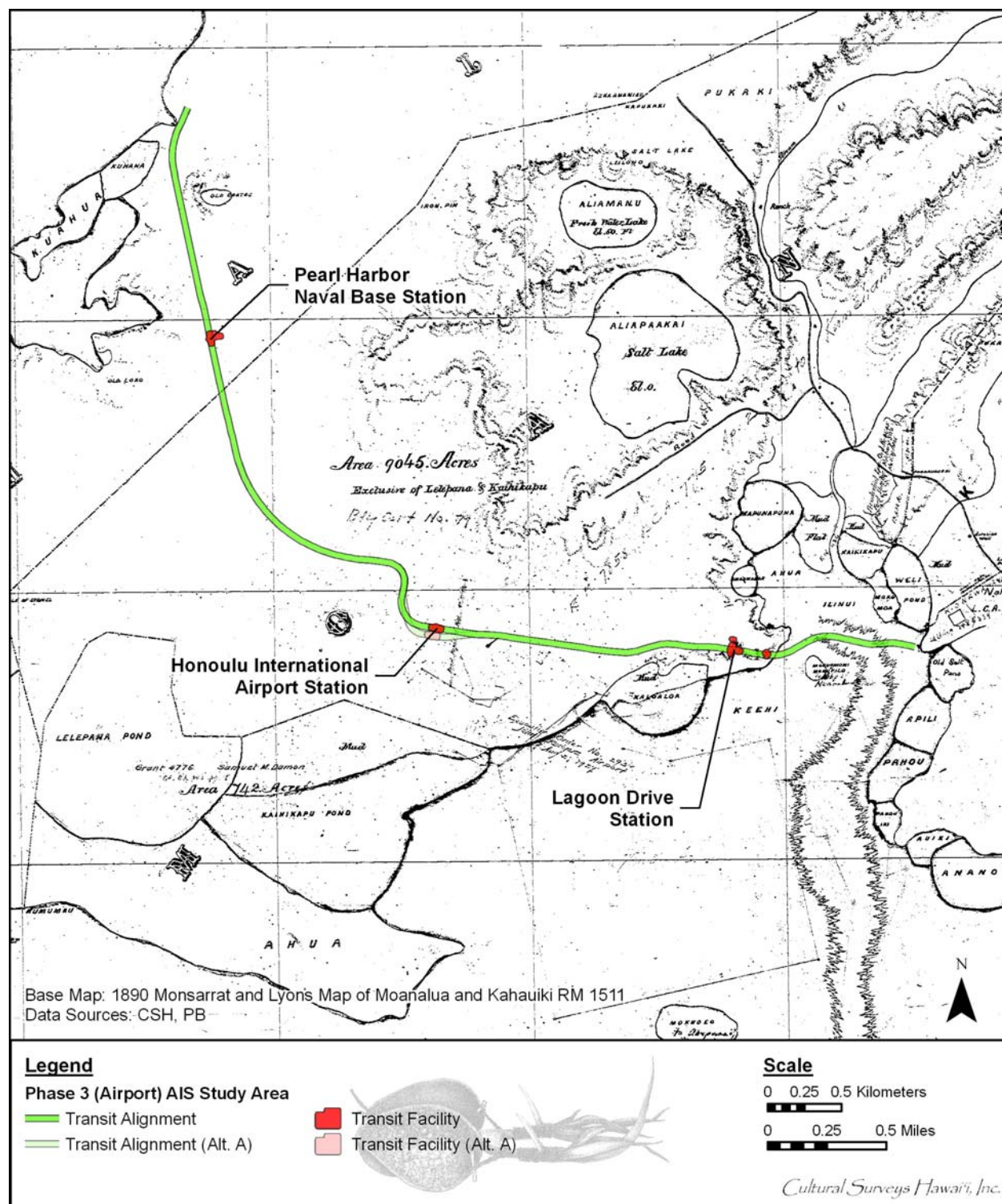


Figure 21. 1890 Monsarrat and Lyons Moanalua and Kahauiki map showing project route (Note: the open water traversed east of the Lagoon Drive Station.)

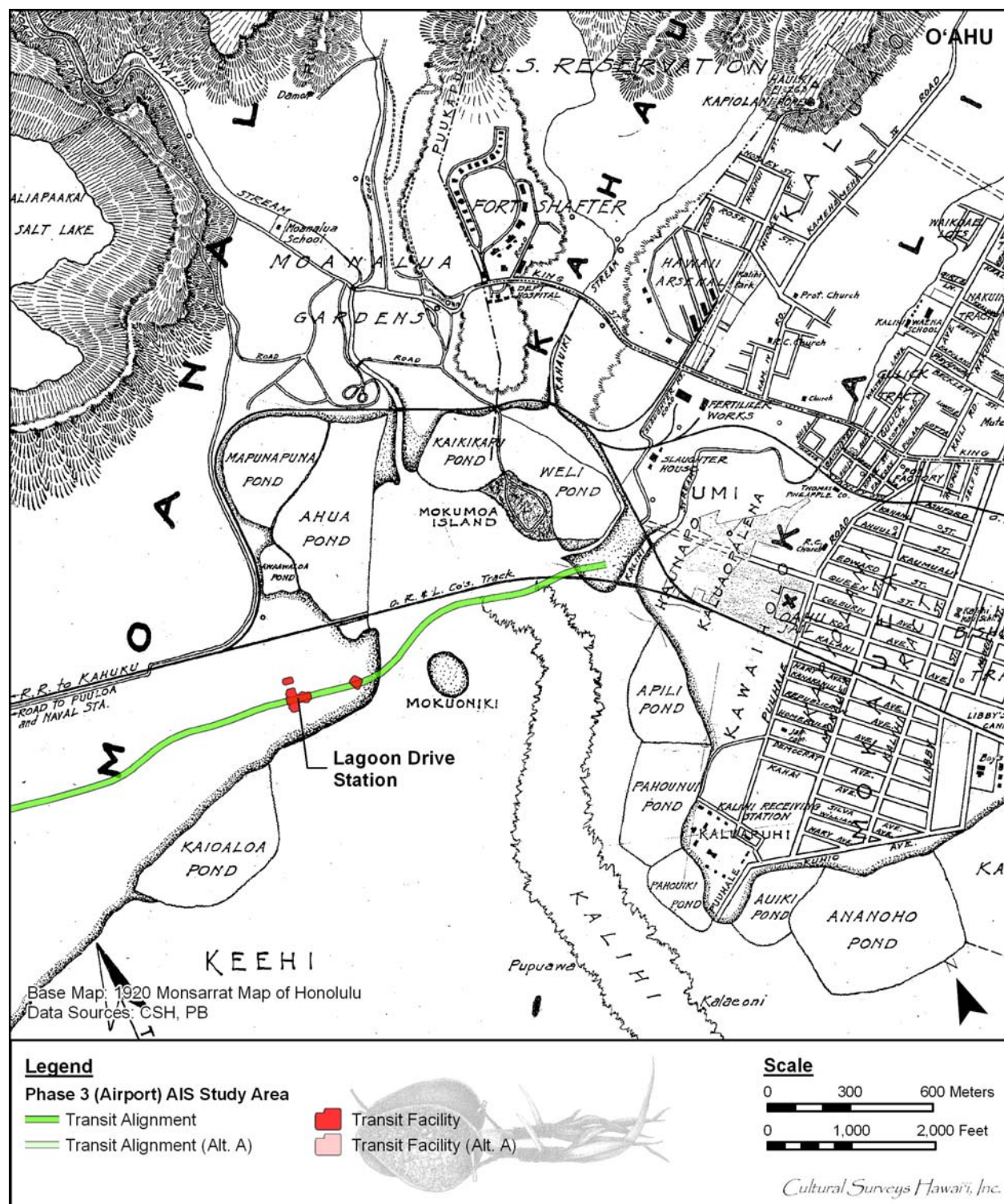


Figure 22. 1920 Monsarrat Honolulu District Map (Note: the open water traversed east of the Lagoon Drive Station.)

Table 4. Fishponds (*Loko*) of the Hālawā-Moanalua Plain

Name	Source	Site Number	Area (acres)	Construction Features	Relationship to Project Alignment
Mapunapuna (Moanalua)	McAllister (1933:93)	50-80-13-78	40	Wall mostly of coral 1600 feet long, 10 feet wide, 1 foot above water on inside, 2.5 feet high outside, 4 <i>mākāhā</i>	600 m inland of Lagoon Drive Station (see Figure 22)
Keawamalia (Moanalua)	McAllister (1933:93)	50-80-13-78	“small”	Surrounded by earth embankments	600 m + inland of Lagoon Drive Station (adjoins Mapunapuna Pond on <i>mauka</i> side)
Awawaloa (Moanalua)	McAllister (1933:93)	50-80-13-79	8.8	Coral rock wall 900 feet long, 2 <i>mākāhā</i>	400 m inland of Lagoon Drive Station (see Figure 22)
Kaloaloa (Kailoloa) (Moanalua)	McAllister (1933:93)	50-80-13-80	36	Semicircular wall of coral 2700 feet long, 6 feet wide, 3 feet high, 3 <i>mākāhā</i>	200 m S of project alignment west of Lagoon Drive Station (see Figure 22)
Ka‘ihikapu (Moanalua)	McAllister (1933:93)	50-80-13-81	258	Coral wall 4500 feet long, 3-8 feet in width, 3 feet high with 3 <i>mākāhā</i>	800 m S of Airport Station (see Figure 21)
Lelepaua (Moanalua)		50-80-13-82	332	Earthen and coral embankments 10 feet or more wide	1000 m SE of project alignment west of Airport Station (see Figure 21)
Āliapa‘akai (Moanalua)	McAllister (1933:93-94)	50-80-13-83		Natural “Salt Lake”	1400 m N of Project alignment Lagoon Drive Station (see Figure 21 and Figure 22)
Waiaho (Moanalua)	McAllister (1933:101)	50-80-13-94	32	Coral and sand walls and 5 <i>mākāhā</i>	2 km SW of the Project alignment (east side of entrance to Pearl Harbor; see Figure 18 and Figure 25)
Ke‘oki (Hālawā)	McAllister (1933:101)	50-80-13-95	-	Narrow wall of coral, rock and sand	3 km SW of the project alignment (east side of entrance to Pearl Harbor; see Figure 25)
Papiolua (Hālawā)	McAllister (1933:101)	50-80-13-96	1	wall 150 feet long, 4 feet wide & high, no <i>mākāhā</i>	3 km west of the project alignment (east side of entrance to Pearl Harbor; see Figure 25)

Name	Source	Site Number	Area (acres)	Construction Features	Relationship to Project Alignment
Loko-a-Manō (Loko Amana) (Hālawā)	McAllister (1933:102)	50-80-13-97	-	-	1.5 km west of Pearl Harbor Naval Base Station at South East Loch (see Figure 25)
Loko Pōhaku (Hālawā)	McAllister (1933:102)	50-80-13-98	2.5	-	1.5 km west of Pearl Harbor Naval Base Station at South East Loch (see Figure 25)
Wailolokai (Hālawā)	McAllister (1933:102)	50-80-13-99	Very small	-	450 m west of Pearl Harbor Naval Base Station at South East Loch (see Figure 25)
Wailolowai (Hālawā)	McAllister (1933:102)	50-80-13-100	-	-	450 m west of Pearl Harbor Naval Base Station at South East Loch (see Figure 25)
Makalapa Crater (Hālawā)	McAllister (1933:102)	50-80-13-101	-	Lake within crater	300 m E of project alignment N of Pearl Harbor Naval Base Station (see Figure 25)
Loko Kunana (Hālawā)	McAllister (1933:102)	50-80-13-102	25	Kuahua Island forms one side, walls from shore to island are 1800 feet and 1950 feet long, approx. 5 feet wide and 3 feet high	On the south side of the mouth of Hālawā Stream 200 m west of the project alignment (see Figure 25)
Loko Muliwai (Hālawā)	McAllister (1933:102)	50-80-13-102	4	Wall 500 feet long with 1 <i>mākāhā</i>	On the south side of the mouth of Hālawā Stream 200 m west of the project alignment (see Figure 25)
Wai Alua (Hālawā)	Klieger 1995:61	-		N side of Hālawā Stream	120 m inland at N side of Hālawā Stream (see Figure 9)
Wai Kalaua (Hālawā)	Klieger 1995:61	-		N side of Hālawā Stream	180 m inland at N side of Hālawā Stream (see Figure 9)
Wai Kuohoi (Hālawā)	Klieger 1995:61	-		S side of Hālawā Stream	700 m inland at S side of Hālawā Stream (see Figure 9)
Wai Kai (Hālawā)	Klieger 1995:61	-		S side of Hālawā Stream	800 m inland at S side of Hālawā Stream (see Figure 9)

Name	Source	Site Number	Area (acres)	Construction Features	Relationship to Project Alignment
Āhua Pond	1920 Monsarrat map			-	150 m inland of Lagoon Drive Station (see Figure 22)
Kaikikapu Pond	1920 Monsarrat map			-	400 m inland E of Lagoon Drive Station (see Figure 22)

Loko Waiaho and Loko Ke'oki were located in the western portion of the Hickam AFB lands, while Loko Lelepaua and Loko Ka'ihikapu were approximately 1.3 kilometers southwest and southeast (respectively) of the present study area.

Apple and Kikuchi (1975:2) discuss the impact that such fishponds would have had on the general population of an area:

Accessibility to these ponds and their products was limited to the elite minority of the native population - the chiefs and priests. Prehistoric ponds and pond products appear to have been taboo to the vast majority of Hawaiians and to have yielded them no direct benefit. However, indirect public benefit came from ownership by the chiefs of exclusive food sources. Royal fishponds...insured less demand on the commoners' food production resources. Every fish taken from a royal fishpond left its counterpart in the natural habitat available to lesser chiefs and commoners.

The fishponds of Moanalua, although not necessarily representing beneficial resources for the commoners, can be seen as evidence of a thriving chiefly class in the *ahupua'a*.

3.2.3 The Māhele

At the Māhele in 1848, the *ahupua'a* of Moanalua was granted to Lot Kamehameha (later Kamehameha V) with fee simple title to native tenants. Subsequently, Land Commission Awards were granted to 101 commoners for parcels they were actively cultivating or resident upon. The Land Commission Awards were heavily concentrated well mauka of the present study area in the "bottom lands" along Moanalua Stream and the two tributaries (Figure 23). No commoner land commission awards are known in the vicinity of the present study area (although George Beckley's claim for LCA 818 (in Kalihi) is not far removed, see Figure 10 and Appendix A). It was common for the aristocracy and/or their overseers (*konohiki*) to retain fishponds and unique cultural resources such as the coastline at the mouth of Pearl Harbor.

3.2.4 Mid- to late-1800s

Upon the death of King Kamehameha V in 1872, Princess Ruth Ke'elikōlani received the *ahupua'a*. When Princess Ruth died in 1883, the land was left to Princess Bernice Pauahi Bishop. A codicil of Princess Bernice's will granted Moanalua to Samuel M. Damon upon her death in 1884. Damon and his heirs began buying up the *kuleana* lands of the *ahupua'a*. Damon kept much of Moanalua in pasture, with portions leased to rice, sugar and banana growers.

In the late 1800s, there were a number of developments in the Moanalua coastal plain that were not well documented (see Anderson and Bouthillier 1996 for discussion). Starting from the east side of the Pearl Harbor entrance and moving to the east, these included the coastal communities of Holokahi, Queen Emma's property, Poi Village, and Kumumau (see Figure 18). These were all on the coast, and none of these were close to the present study area.

The 1890 Monsarrat and Lyons map (Figure 21) shows no development in the project vicinity other than fishponds.

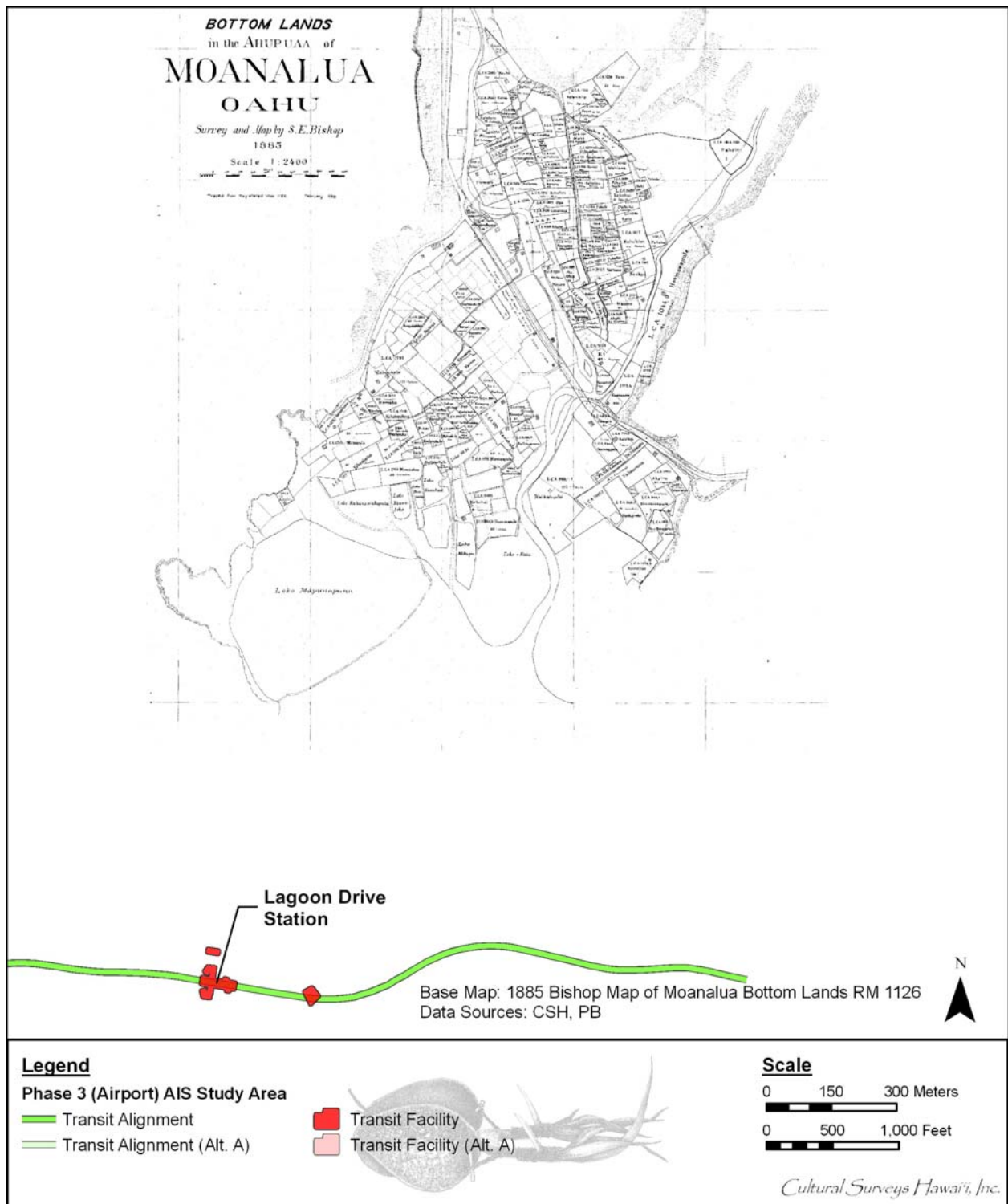


Figure 23. 1885 Map of the Bottom Lands in the Ahupua'a of Moanalua by S.E. Bishop, showing the extensive network of *lo'i* and Land Commission Awards (LCA) in lower Moanalua in relation to the present project corridor (which is built on fill lands well seaward of the former Moanalua Stream mouth)

3.2.5 1900s

At the end of the nineteenth century, the Honolulu Sugar Company (later Honolulu Plantation Company) began leasing portions of Moanalua for sugar cane cultivation. Extensive sugar cane planting extended seaward into the present study area (see Figure 17). It appears that a Honolulu Plantation Company railroad line crossed east/west makai of the present study area by 1906 and the OR&L ran east/west just to the north (at the Nimitz alignment) (see Figure 9). A sugar plantation community developed at Pu'uloa Camp circa 1930, and another community called Watertown developed adjacent to the east side of the Pearl Harbor entrance. A map of the Honolulu Plantation Company lands circa 1935 (see Figure 17) indicates that the Moanalua portion of the study area was in commercial sugar cane fields no. 2, 3, 7, 7 ½, and 8 to 11 (much of the Hālawā portion traversed sugar cane field 1).

The 1933 U.S. US Army War Department map notes the presence of a salt works between Lelepaua Pond and Ka'ihikapu Pond (see Figure 16 and also Figure 18). Rodgers Airport (which was to become Honolulu International Airport) is understood to have been begun in 1930 (see Figure 16). Pearl Harbor had been the focus of American interests in the Hawaiian Islands for many decades prior to annexation. Following annexation in 1898, and with an eye on the need to establish a coaling station for American warships running to the Philippines and beyond, improvements at the Pearl Harbor entrance was a major concern. Some 429 acres were purchased from Queen Emma Kaleleonālani for \$28,285 which was developed as Fort Upton (changed to Fort Kamehameha in 1909). An additional 400 acres were purchased from the Damons in 1911. In 1908, the Navy dredged Pearl Harbor channel, which was blocked by a shallow sand bar that had greatly restricted earlier development efforts. Much of the fill from this and later dredging efforts was used to fill in low-lying lands. Five separate coastal defense batteries were built (including Battery Selfridge and Battery Hawkins). The Fort Kamehameha post housed Hawai'i's first aviation unit in 1917-1918. The population of the base remained about 1,800 until World War II.

The very substantial fill activities and airport construction, especially those associated with 1942-1943, are readily apparent in a comparison of the 1933 (see Figure 16) and 1943 (see Figure 19) maps. Fill activities have pushed the shoreline more than 500 m southeast from the Honolulu International Airport Station. The vicinity of the project lands have been rapidly developed with roads and elongated warehouse-like buildings.

Nearly the entire eastern-most kilometer of the airport section lies on lands that were reclaimed from the sea with fill extending to, or below, sea level in the 1942/1943 timeframe. These mid-twentieth century fill deposits to the water table appear to have no potential for in situ cultural resources predating circa 1942.

The 1953 Army map service quad map (see Figure 20) shows further urban and light industrial development in the project vicinity largely associated with the expansion of Honolulu International Airport and Hickam AFB. Following statehood, the lands of Moanalua were greatly developed for residential and light industrial uses. By 1978 (Figure 24), the development of the vicinity was much as it remains today.

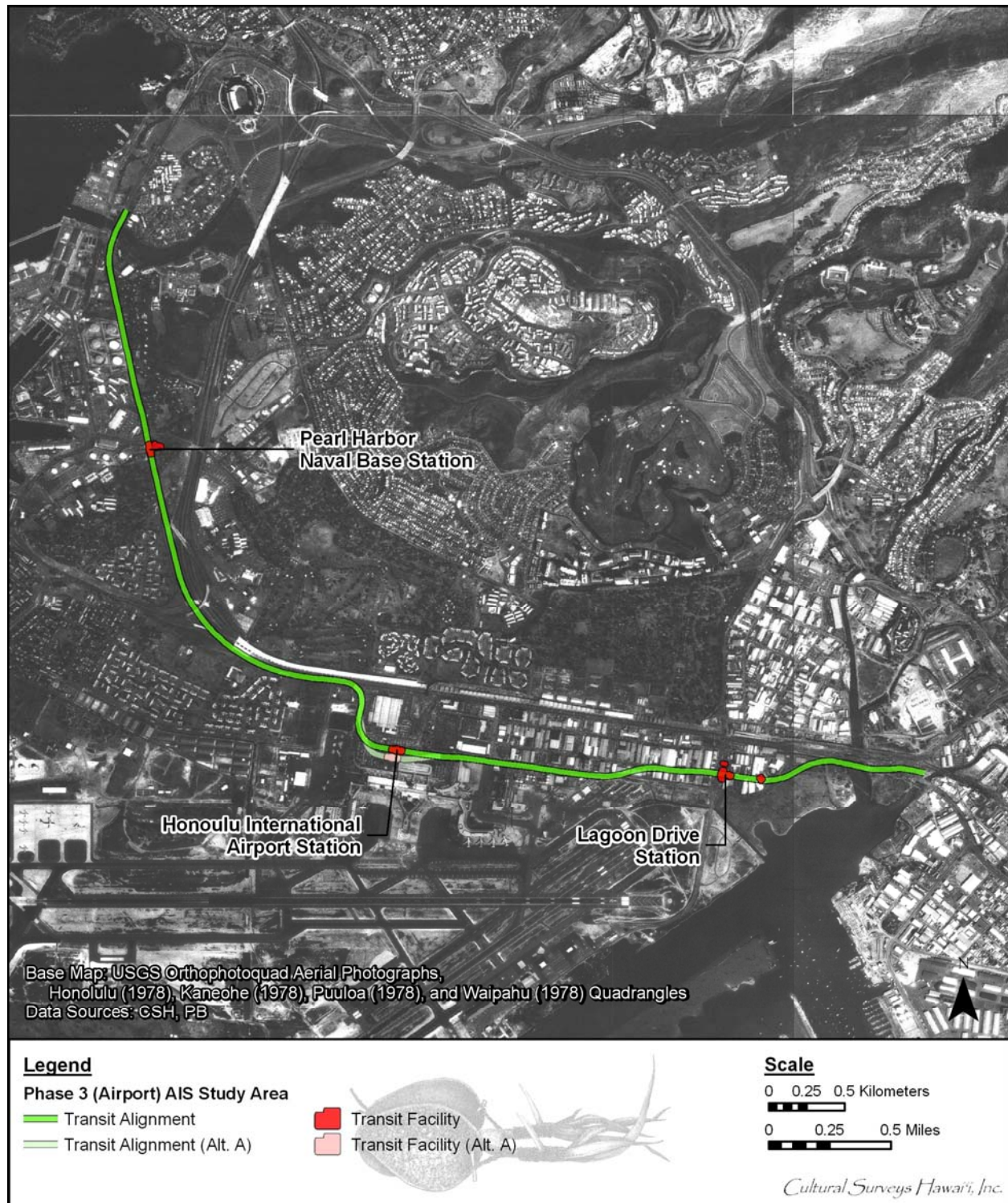


Figure 24. 1978 U. S. Geological Survey Orthophotograph showing study area